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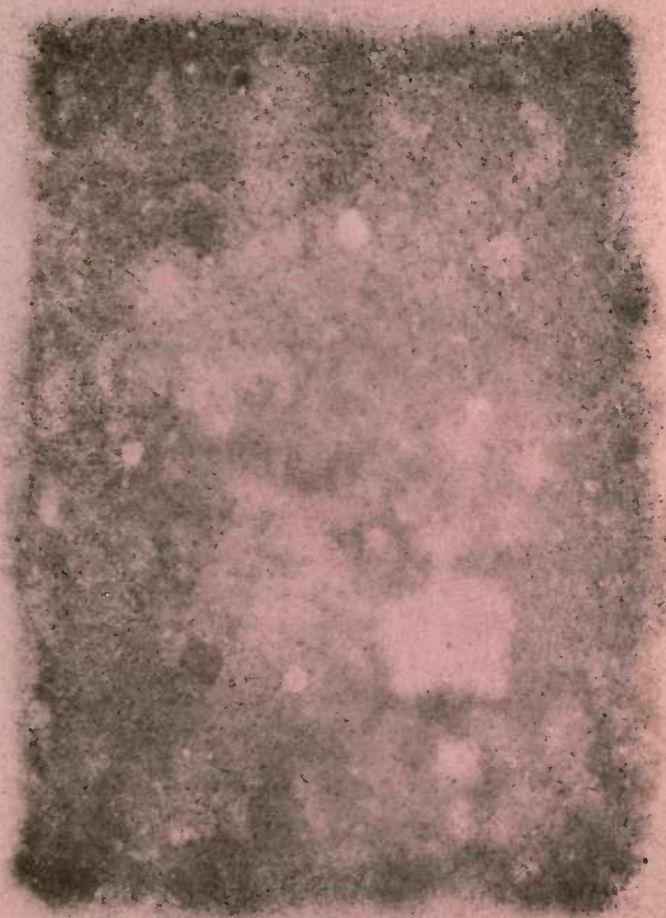
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FIRST STEPS TO THE BRITISH FLORA







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FIRST STEPS
TO THE
BRITISH FLORA:

ARRANGED ACCORDING TO
THE NATURAL SYSTEM.

BY THE AUTHOR OF "WILD FLOWERS AND
THEIR TEACHINGS," &c.

"Some make acquaintanceship with plants and flowers,
And happy grow in telling all their names."

LONDON:
WERTHEIM AND MACINTOSH,
24, PATERNOSTER ROW.

FLORAL NAMES.

“ What emblems shall I choose for ye,
From Flora's crown?”

The Daisy, for my Margaret fair,—
Blue-bell—best twines in Ellen's hair,—
Heart's-ease for one without a care,
To ruffle his young brow.

The Rose for Fanny's smiling cheek,—
The Wall-flower each *true friend* must seek,—
Whilst Violet, and Lily, speak,
Of happy,—“ Bygone hours.”

And oh ! when bloom and smiles shall fade,—
When Earthly hopes in dust are laid,—
May all, in Heavenly Robes array'd,—
Again bloom,—and for ever !



“And for our encouragement in this study, observe what the Psalmist saith, ‘The works of the Lord are great, sought out of all them that have pleasure therein.’”—RAY.

“We hail that joy which is felt in the pursuit of these occupations, as a sacred gift, which may be compared to the rain from Heaven, sent for the benefit of all;—for increasing the temporal welfare both of the just, and of the unjust;—for procuring blessings equally to the good and to the evil; but which the former only know how thoroughly to appreciate, and to apply to the highest and best advantages.”

REV. PROFESSOR HENSLOW.

P R E F A C E.

As the best authorities have been consulted for the botanical information given in this little work, it is hoped that, (however deficient in other respects) it will be found an useful guide to the beginner in the study of the Natural System of Botany.

One who had full opportunity for observing the advantage this study was to the mind, asserts that, "Mathematics do not more effectually strengthen and discipline the judgment, than does the study of Natural History" teaching, "the art of thinking clearly and accurately, with a much less degree of weariness to the mind, &c."*

* "This search into Nature produces also, a highly beneficial influence on the understanding. Mathematics do not more effectually strengthen and discipline the judgment. By a continual analysis, comparison and generalization of things, the study of Natural History teaches the art of thinking clearly and accurately, and of reasoning with precision and force, with a much less degree of weariness, than that, which usually accompanies the study of simple quantities and mere abstract forms." "*Naturalists' Poetical Companion*," by a *Fellow of the Linnean Society*.

In accordance with these views, the system has been more closely followed, and classification and comparison, more carefully carried out, than some may deem necessary in these "First Steps" for the young.

A habit of close investigation and analysis, will not only best open the mind for the study of Natural History ; but may supply the place of Euclid with benefit to the health, at least, of the delicate girl, and be taken in turn with deeper studies, to the improvement of the stronger mind also.

For there is yet another and higher benefit resulting from this study, which is so well described by one* whose writings give such frequent evidence of its happy influence over his own mind, that, in conclusion, a passage from his works shall be given, which will best commend it to all.

" Whilst we study the works of Nature, the God of Nature will manifest himself to us ; since to a well-tutored mind, 'The Heavens' without a miracle, 'declare his glory, and the firmament showeth his handy work.' "

* Bishop Horne.

INTRODUCTORY ADDRESS.

Oh Nature's simple, unperverted child,
For thee I write, and crave a friend in thee !
Come, hand in hand with me her ways explore,
Mark'd by the year's beginning, growth, decline :
What hinders, but we draw of thoughts a store,
Pleasant and good, from that abundant mine ?
But oft to pause, forget not ; and adore,
By nature's works reveal'd, the Cause Divine !—

BP. MANT.

AND will my dear companions to the field and wood,
now make some excursions with me up the Hill of
Botany ? A somewhat difficult hill to mount, at
times, perhaps : but I can promise that we shall find
all our favorite flowers there, and, in appearance,
far more beautiful than we have ever seen them

yet. Displaying new wonders—curious forms, and valuable properties, we could never have imagined they possessed.

And when the path is very rugged, and we are weary, we can sit down, and refresh ourselves with pleasant chat, and sweet poetry about the flowers ;—poetry which I hope you will like to learn by heart ; and then pleasant thoughts will be associated with the flowers, wherever you may meet them.

Some of you were very fond (in *younger* days) of pulling to pieces your toys, or any stray article that came in your way, to see how they were made, or what they contained :—Flowers are scattered thickly around you, pull them to pieces, and see what curious and beautiful things were there hidden from view ! Such wonderful little boxes, full of seeds of every shape and color ! Such elegant vases and cups, bowls, and salvers. Such tasty bags, baskets, and purses ! And oh ! the beautiful little Cornucopias, with their ripe fruit just ready to fall into your hand ! Then there are elegant little chandeliers, and crosses ;

magnificent crowns and coronets ; light and graceful plumes of feathers, tufts, and crests ; needles, hooks, buttons, and threads ;—such fine, silvery thread, as only fairies could work with. And there are fairy birds to be discovered, concealed amidst the flowers, and bird's feet, as red as those of the beautiful white Dove ! All these things, and many more, equally wonderful and curious, we shall discover, by the aid of our Lens, as we travel up the “ Hill of Botany.” And so numerous, and widely scattered are these wonders, that should we make daily excursions through a long period of years, something new would yet arise, to call forth our admiration, and to encourage farther research.

“ Where'er we search, the scene presents,
Wonders to charm th' admiring sense,

And elevate the mind :

Nor even blooms a single spray,

That quivers in departing day,

Or turns to meet the morning ray,

But speaks a Power Divine.”—S. H.

And "every spray, speaks" of a Gracious, Loving Heavenly Father too, who scatters, thus profusely, all these treasures for our continual enjoyment!—Treasures that can call forth feelings of joyful delight, in days of health and happiness,—and soothe and cheer us in days of sickness, sorrow, and anxiety: whilst studying God's beautiful works,

" Past griefs are for awhile forgot,
And joy smiles again."

In former rambles we provided ourselves with a basket, and tin box, to hold our *flowers*; we must now add a pair of forceps, a lens, a penknife, and a large needle; that we may dissect our specimens, and examine every part; for the smallest parts of the flower are often the most curious and beautiful when examined through the lens, or microscope; and in the "Natural System of Botany," the formation of a seed, or arrangement of the stamens, are very important particulars.

Although this book will only help to guide you

on part of your way, I hope it will lead you to examine carefully, and to understand fully, each flower that you examine by it. For then, you will soon be able to turn to a work describing every British Plant, for information respecting other plants.

It is to Sir William Hooker's "*British Flora*,"* that I am most gratefully indebted for all the Botanical descriptions this volume contains; and in that work you will find every plant so fully described, and arranged in such beautiful order, that you can learn from its pages, the name and character of every plant you meet with in your rambles.

Do not shrink from a few difficulties at the commencement of this study; remember the time when you began to learn music, how difficult that study appeared; and how many months passed before you could play one sweet air perfectly; but you persevered, and how very easy does that first air now appear to you. The study of plants (as well as of all God's

* The British Flora arranged according to the Natural System by Sir W. Hooker and Dr. Arnott.

beautiful works) gives pleasure and interest, each step we take : from the early Spring walk, in search of the “ Lesser Celandine,” to the close of Summer, and its beautiful and delicate “ Grass of Parnassus.”

And you, who are fond of sitting with a Crochet-book before you, puzzling out a new stitch with such persevering industry ;—or, who spend hours over your wool-work, crossing stitches so patiently ; I would *entreat* you to give *some* of those hours at least, to healthful rambles up the Hill of Botany ; where you are refreshed and strengthened by the pure air, and invigorating breezes, whilst applying to a study, which will give you far higher and more lasting enjoyment, than any fancy needle-work can ever yield.

“ God made the flowers to beautify
The earth, and cheer man’s careful mood,
And he is happiest, who hath power,
To gather wisdom from a flower,
And wake his heart in every hour,
To pleasant gratitude.”—WORDSWORTH.

To dry a specimen of each flower you study, will prove an amusement of increasing interest ; and the arrangement of such specimens on paper, with their names, orders, and the peculiar character of the plants written below, will afford pleasant occupation for winter months ; keeping summer and its flowers, still in view. And what pleasant memorials they will be, years hence, of many a delightful ramble,—and of beautiful scenery, where those flowers were blooming fresh around you.

I will give directions for drying Plants, with the best method for preserving their colors,—at the end of this volume. If you can discover any way of *fixing* their colors when dried, more effectually,—I hope you will communicate the result of your experiments : for there, is the difficulty yet to be surmounted. If you have any taste for drawing, what pleasure you will find in drawing flowers from nature ; dissecting them, and giving each part its botanical name :—what is thus engraven on the memory can scarcely ever be forgotten.

To make a collection of leaves, of different forms, depriving them of their outer coat, and leaving only their beautiful network of nerves and veins,—To sow seeds in sand, and observe the first growth of the Embryo plant,—To grow cuttings of plants (or even of a single leaf of some plants) in a vial of water, where you can observe the growth of the young rootlets,—To grow mustard and cress-seed in a plate, and an oak-tree in a bottle!—afford a variety of interesting amusement, ever leading to the discovery of something new,—and yet, leaving something new to be discovered:

“ For every green herb, from the Lotus to the Darnel,
Is rich with delicate aids, to help incurious man.”

But I must now explain to you, the purport of this little work ; which is, to teach you, as simply as I can, the classing of plants ; giving you such botanical descriptions as will make you familiar with the name of every part of a plant,—with the character of each family of plants,—and with the terms used in Botany.

And when you have examined and studied botanically, all the plants you are acquainted with;—when you are thus far advanced,—what pleasure you will enjoy in the discovery of a new plant! However insignificant it might appear to one who only looked for beauty in a flower, it will be to you an object of delightful interest; and probably be found to possess some beauty of structure, or valuable property, which a closer examination alone, could enable you to discover or admire.

“For wonderful indeed are *all* His works,
Pleasant to know, and worthiest to be all
Had in remembrance, always with delight.”—MILTON.

June, 1853.

ERRATA.

Page 7, line 7, for "1000," read "2000." See note *a*, p. 138.
Page 30, for "Helebore," read "Hellebore."

CL.1. DICOTYLEDONS OR EXOGENS. CL.2. MONOCOTYLEDONS OR ENDOGENS.

FLOWERING PLANTS.



Vincent Brooks del.

CL.3. ACOTYLEDONS OR CELLULARES
FLOWERLESS PLANTS

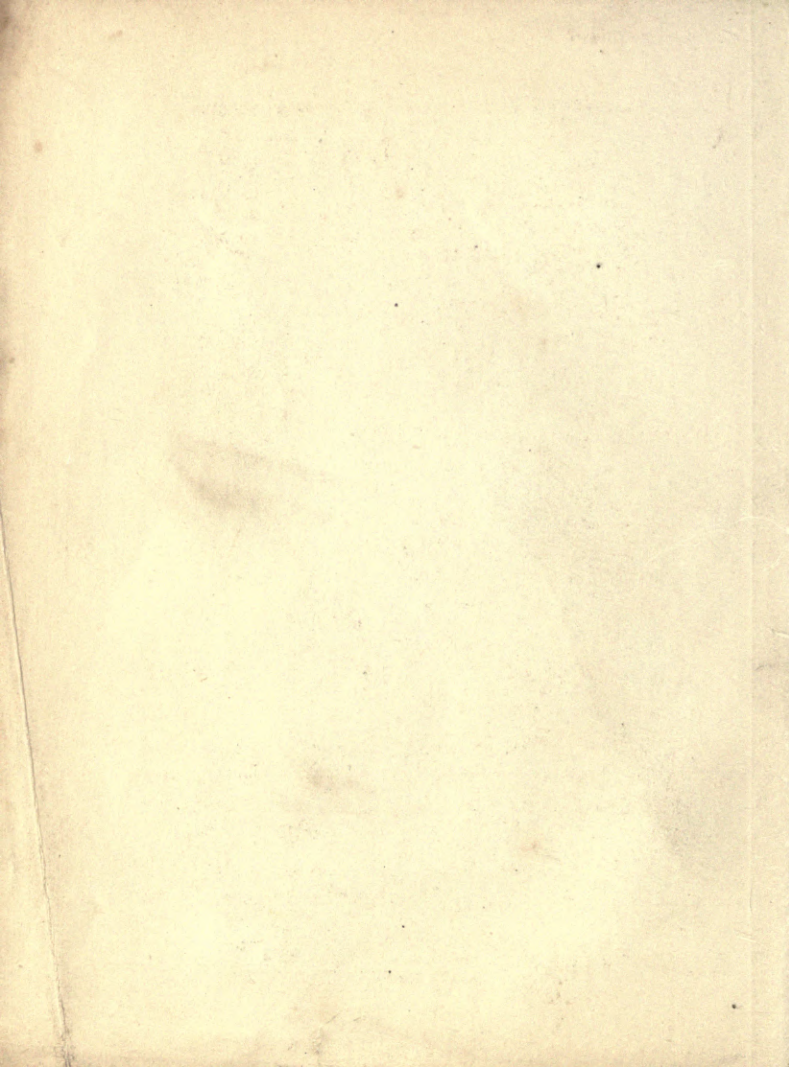
CL.1. DICOTYLEDONS OR EXOCENS. CL.2. MONOCOTYLEDONS OR ENDOCENS.

FLOWERING PLANTS.



Ancient Brooksmith.

CL.3 ACOTYLEDONS OR CELLULARES
FLOWERLESS PLANTS



EXPLANATION OF PLATE I.

- | | |
|---|--|
| <p>A. 1. EMBRYO PLANTS, with two COTYLEDONS. (C.C.) Plumule, Leaves, Radicle, Fibres, Testa. (Pea and French Bean seeds).</p> <p>2. STEM, (cut transversely). Bark outside, Wood within, Pith in centre. Medullary Rays extend from Pith to Bark.</p> <p>3. LEAVES, with branched nerves, and netted veins. (a. Caltha, c. Petiole. b. Wall-flower, d. Stem).</p> <p>4. FLOWERS arranged in a Quinary or Quarternary manner, (or multiples of those numbers). (c Celandine. f Enchanter's Nightshade. g. Mallow, h. Violet. i. Pod of Celandine. j Capsule of Poppy. k. Do. of Cam-pion.)</p> <p>5. A CORM. (bulbous root of underground Stem.) (Bulbous Crowfoot.)</p> <p>7. SPINES. (l. Barberry. d. Stem.)</p> | <p>B. 1. EMBRYO PLANTS, with one COTYLEDON, Leaf, Radicle, rootlets, Glumes. S. Caryopsis. (fruit). a. Canary. b. Indian Corn.</p> <p>2. STEM, (cut transversely). Pith (Cellular tissue) with woody fibre (Vascular tissue) in confused bundles. No distinct Bark.</p> <p>3. LEAVES with parallel nerves, and transverse veins. (a. Water Plantain, b. Grass, c. Solomon's Seal).</p> <p>4. FLOWERS arranged in a ternary manner, (or their multiples). (d. Orchis. e Flowering Rush. f. Follicles of do. g. Starch Hyacinth Capsules.</p> <p>6. BULBS, formed of Leaves around Stem. Tulips, a Tunicated Bulb. Lily, a Scaly Bulb. (Few Plants with Spines.)</p> |
|---|--|

C.

1. Ferns.
2. Horse-tail.
3. Club-moss.
4. Moss.

5. Liver-warts.
6. Chara.
7. Lichens.

8. Seaweeds.
9. Fungals.
10. Do. on Leaves.

C.

DESCRIPTION OF THE THREE CLASSES.

The Plant, upspringing from the Seed,
Expands into a perfect Flower,
The virgin daughter of the mead,
Woody by the sun, the wind, the shower ;—
In loveliness beyond compare,
It toils not, spins not, knows no care ;
Trained by the secret hand that brings,
All beauty out of waste, and rude ;
It blooms a season, dies, and flings,
Its germs abroad in solitude.”—J. MONTGOMERY.

WE will begin with examining seeds ; for it is from the different formation of them, that all plants are first classed. And we will examine real seeds and plants, whenever it is possible to do so ;—it is so much more interesting and satisfactory than turning for explanation even to,

Aught that deffest pencil e’er devised,
Of graceful symmetry, or lovely hue ;—
For “ Who can paint like Nature ? ”—D. L.

This little work will merely contain such slight sketches as will be sufficiently accurate to guide you

to the parts of a plant to be examined, and explain the terms used in Botany.

Now, take some seeds of Beans, Peas, Scarlet-runners, or Acorns. Soak them in water for a night ; after that, you will find the seed-cover readily slip off, and the seed divide into two parts ; each part is called a Cotyledon, or seed-lobe.* Pl. I. A. c. c.

Take some seeds of a Lily, Indian Corn, Wheat or Grain of any kind ; and soak them in water ; you will find that they will not divide into two parts ; they have but *one* Cotyledon. Pl. I. B. c.

The seeds of all *Flowering Plants*, are thus formed ; with either *two* Cotyledons or *one* Cotyledon ; and are divided accordingly, into two classes, named,

I. DICOTYLEDONS, (or Exogens,) with *two* Cotyledons.

II. MONOCOTYLEDONS, (or Endogens,) with *one* Cotyledon.

There are a great number of Plants, which are *Flowerless*, bearing seeds, (called Fruit, in Botany) which have no Cotyledons. They form the Third Class, and are called,

* For explanations of names and terms, see the "Glossary," at the end of the Vol., for much of which information I am indebted to Dr. Lindley's "Glossary of Botanical Terms."

III. ACOTYLEDONS, (or Cryptogams).* Pl. I. C.

The First Plate will give the distinguishing characters of these three Classes, which, with farther explanation, will enable you to discover, very easily, to which of the three Classes every plant belongs.

Now examine the open seed-lobes through your lens; and you will see the little Embryo Plant (as every young seedling is first called) lying between, and forming a part of them. You can readily distinguish Stem, Leaves, and Root, completely formed. Pl. I. A I.

You cannot distinguish the Cotyledon, or Embryo Plant of the Monocotyledons well, until the seeds begin to grow. Sow some of the seeds you have soaked, in a pot of white sand, (from which they can be separated more readily, than from earth, when you wish to examine them). In a few days you will see the one Cotyledon; and from that will shoot the Embryo Plant,—one narrow leaf,—and from its sheathing Stem, another will appear: never two leaves at a time, as we find in all Dicotyledons. Pl. I. B I. Here you see another distinguishing character in the two Classes; and we shall see this difference of structure carried out in every part of the Plants. The

* Or, as often called, Cellulares. Pl. I.

First Class has a more complicated, consequently, a more firm, and durable structure than the second.

We will now examine the Stems, where the more important difference of structure, (the woody fibre) is best seen.

Cut off a branch, of any tree of our woods or gardens, and you can see the structure of a Dicotyledonous Stem: we can find no trees of the second Class in this country,—except in hot-houses. But a piece of Cane or Bamboo, (of which chairs, and walking-sticks are often made,) will, even in their dry state, show you the formation of a Monocotyledonous Stem very well. Pl. I. A 2. B. 2.

In the First Class, the PITH is in the centre,—WOOD around it,—and BARK outside. A *new* layer of Wood is formed on the *outside* of the *old* each year: the newest Wood is white, and called Alburnum. The Bark is increased by a succession of layers *within* the old,—the newest Bark being always *next* to the Alburnum. The MEDULLARY RAYS, connect the Pith with the Bark, and are called the Silver Grain, in wood.

In the Second Class, the Stem is *not* increased by a succession of layers on the *outside* of the old ones; but consists of Cellular Tissue, in which the woody fibre (Vascular Tissue) is inserted in confused bundles, or

in a single ring ; the newest formation being *internal*. A Stem of Corn or Grass, will show this structure. The Stem of a Monocotyledonous Plant, has no distinction of Medullary Rays, or Bark : and from this weaker structure, trees of their Class, live a much shorter period than trees of the first Class : many of which can be found more than 1000 years old ; whilst the most venerable of the second Class can scarcely number 300 years.

Herbaceous Plants, (those Plants which die down to the ground each year,) of the First Class, are more durable than those of the Second, also ; with a few exceptions perhaps.

We will now compare the LEAVES : hold up some to the light, and you will see their nerves and veins very distinctly. If the leaves have veins which branch and interlace, like net-work, they belong to Plants of the First Class. But if the leaves have nerves which run parallel to each other, and veins which do not interlace ; we know that they must belong to Plants of the Second Class. Pl. I. A 3. B 3.

There are a *very* few exceptions to this rule, (the Common Arum, is one,) therefore do not decide to which class a plant belongs, by the veining of the leaves alone ; but observe the growth of the Stem and

Flower as well. The leaves of the Yew-tree have but one nerve down the centre ; but we know by the growth of the trunk of the tree, and its branches, that it belongs to the First Class : for Monocotyledons never branch.

There are a few exceptions also, to the Monocotyledons having but one Cotyledon. There is, with some plants, a second Cotyledon, but it is always alternate, and never forming a pair with the first, as is the character of all Dicotyledons

We shall find a difference of arrangement in the *Flowers* of the two classes also ; but here too, a few *exceptions* may be found.

In the First Class, the different parts of a FLOWER, (Calyx, Petals, Stamens, &c.,) are divided into two, four, or five pieces ; or their doubles, (four, eight, ten, fifteen, twenty, &c.), *scarcely* ever into three, six, or nine, or their doubles. And in the Second Class, their parts are divided into three, six, or nine, &c., and scarcely ever in even numbers, or fives. The Flowers are also without any distinct Calyx. Pl. I. A 4. B 4.

Many Roots of each Class are too similar, to the unpractised eye, to be any guide ; but the Bulbous Root is so differently formed, that we will examine

some carefully, and we shall soon learn which must belong to the Second Class. Take the Bulb of a Tulip, Lily, or (if you *prefer* it) an Onion; cut it down the centre, and you will see that it is formed of a succession of layers, folded closely round, or in loose, fleshy scales, outside. These are formed of Stem and Leaves, and are *true Bulbs*: always belonging to the Second Class. Pl. I. B 6.

Some Plants of the First Class have BULBOUS ROOTS, formed of Stem, so solid that you cannot distinguish the layers of which it is composed. These Roots are called CORMS. Pl. I. A 5.

We call them Roots, but the *real* Roots of all Corms and Bulbs, are the fibres which grow out of the lower part of them.

TRUE BULBS are formed of Leaf-buds, which you will find growing on the Stems of some Lilies, above each Leaf. Set some of these little round buds in a pot of earth, and watch their gradual growth into perfectly formed Bulbs, which Bulbs will in *time* reward you with Flowers.

You now know the most important distinctions between the two First Classes. I hope you have been so interested in examining and comparing, as to be able to tell already, in which Class to place a

Flowering Plant? just referring to the plate perhaps to refresh your memory.

Of the Third Class, (which consists of FLOWERLESS Plants, you remember);—I will only give the names of the principal orders (Pl. I. C.) with figures, that may assist you to distinguish them from Flowering Plants, when you meet with them. FERNS are the most likely to puzzle you, when not *in fruit*, (which fruit, unlike all Flowering Plants, grows on the back of the Leaf.) But hold some of the leaves to the light, and you will see how differently they are veined: being neither netted nor parallel,—but forked. These minutely formed CRYPTOGAMIC (or Flowerless) Plants, cannot be examined Botanically, without the aid of a Microscope: and even then, it requires much study to distinguish Species. We will therefore not attempt to do more, at present, than look at, and admire the wonderful perfection of form, even of the minutest part: as perfect and interesting as are the lovely Flowers:

“Where’er I cast my wandering eyes around
The God I seek in ev’ry object’s found,
Pursuing thee, the verdant fields I pass,
And read thy Name in every blade of grass.
Beauty complete, and Majesty Divine,
In all thy works, adored Creator, shine.”





Vincent Brooks Lith.



EXPLANATION OF PLATE II.*

- | | |
|---|---|
| <p>c. Crowfoot.</p> <p>1. Cal. S sepal.</p> <p>2. Corolla. p. petal.</p> <p>3. Nectary.</p> <p>6. SECTION of a CROWFOOT.
Showing the 4 whorls on the
 Receptacle.</p> <p>4. SECTION of a COLUMBINE.
 showing the 4 whorls on
 the Receptacle.</p> <p>5. Pistil and Stamens of a
 CRUCIFORM FLOWER.</p> <p>W. 2. WALLFLOWER. 7. V.
 Pod (Siliqua). 7 p. pouch
 (Silicula.)</p> <p>7. PERICARPS. Carpel, follicle,
 c. c. Capsule. berry. Sa-
 mara.</p> <p>8. PISTIL. ovary. s^x. style,
 stigma.</p> <p>9. AWN (feathered) a. achene
 (pericarp.)</p> <p>10. IMBRICATED BUD.</p> <p>11. SCAPE (of Sundew) glands,
 radical leaves.</p> <p>12. RACEME. PANICLE.</p> | <p>13. Stems. t. with tubercles
 p. with prickles.</p> <p>14. LEAVES. (L lamina—the
 blade, p^x. petiole the
 stalk.) lyrate. ovate. re-
 niform. peltate. ternate.
 Palmate (5 lobed) cor-
 date. (dentate edge.)</p> <p>14^x. LEAFLETS. Stipules. ten-
 dril.</p> <p>15. ROOTS. fascicle, fusiform,
 tuber.</p> <p>ANEMONE. INVOLUCRE.</p> <p>2 p. Petal of CAMPION. crown
 claw.</p> <p>2 m. MALLOW. (monodel-
 phous stamens; petal, ob-
 cordate.)</p> <p>2 c. CORYDALIS. spur. bracts.</p> <p>3 M. Nectary of MONKSHOOD.</p> <p>3 H. Do. of Helebores.</p> <p>7 f. FOLLICLE (of COLUM-
 BINE) dehiscent.</p> <p>7 m. CAPSULE of MALLOW.
 Involucre.</p> <p>7 c. p. placenta. d. dissepi-
 ment.</p> |
|---|---|

* This plate will be more fully explained, and referred to, as the plants figured, are described.

REMARKS ON THE STATE OF

1. The first of the year	1. The first of the year
2. The second of the year	2. The second of the year
3. The third of the year	3. The third of the year
4. The fourth of the year	4. The fourth of the year
5. The fifth of the year	5. The fifth of the year
6. The sixth of the year	6. The sixth of the year
7. The seventh of the year	7. The seventh of the year
8. The eighth of the year	8. The eighth of the year
9. The ninth of the year	9. The ninth of the year
10. The tenth of the year	10. The tenth of the year
11. The eleventh of the year	11. The eleventh of the year
12. The twelfth of the year	12. The twelfth of the year
13. The thirteenth of the year	13. The thirteenth of the year
14. The fourteenth of the year	14. The fourteenth of the year
15. The fifteenth of the year	15. The fifteenth of the year
16. The sixteenth of the year	16. The sixteenth of the year
17. The seventeenth of the year	17. The seventeenth of the year
18. The eighteenth of the year	18. The eighteenth of the year
19. The nineteenth of the year	19. The nineteenth of the year
20. The twentieth of the year	20. The twentieth of the year
21. The twenty-first of the year	21. The twenty-first of the year
22. The twenty-second of the year	22. The twenty-second of the year
23. The twenty-third of the year	23. The twenty-third of the year
24. The twenty-fourth of the year	24. The twenty-fourth of the year
25. The twenty-fifth of the year	25. The twenty-fifth of the year
26. The twenty-sixth of the year	26. The twenty-sixth of the year
27. The twenty-seventh of the year	27. The twenty-seventh of the year
28. The twenty-eighth of the year	28. The twenty-eighth of the year
29. The twenty-ninth of the year	29. The twenty-ninth of the year
30. The thirtieth of the year	30. The thirtieth of the year
31. The thirty-first of the year	31. The thirty-first of the year

THE STATE OF THE YEAR 1800

ON THE ORGANS OF PLANTS.

Succeeding to the vacant room,
Where flourished late, the painted bloom,
Strange forms of differing shape and size,
The enquiring eye delight, surprise.
Whether the Capsule's jointed chest,
Its store, with order just, invest;—
Whether the Cruciate Flower, his pod,
Contrast, of figure short and broad;
Of 'Shepherd's Purse,' the counterpart
In shape, of an inverted heart;—
Or stretch his vessel, slim and tall,
Like that which clothes the scented Wall;—
In all, boon Nature seems to try,
Profuse and strange variety.
All curious to the inquiring mind,
All apt, to work the end designed;
And still, as onward still we range,
She strikes us with perpetual change.—BP. MANT.

I MUST NOW explain to you what are called the ORGANS of PLANTS, and the various names, by which they are distinguished. You will be surprised to find that the formation of a single organ, the seed vessel, is so varied, and yet so distinct in character; that they may be classed, under at least twenty dif-

ferent names. But we will not attempt to learn all at once: but keep to those most generally applied to plants in the First Sub-Class: many, in the other divisions are the same, but in each we shall discover some new forms and character. The most important Organs, are the ROOT, STEM, LEAVES, CALYX, PETALS, STAMENS, PISTIL, FRUIT and SEED.

In Botany, the term *Fruit*, means that organ which contains the seed, whether it be good for food, or poisonous:—whether it be dry, or soft; small as the Shepherd's Purse; or large as a Melon. If it contain the *Seed*, it is the Fruit; often called a Seed-vessel. Plate I. 4, II. 7. We have examined the Embryo Plant: (composed of Radicle, Plumule and Cotyledons) now sow some seed in sand and watch the growth of that little plant, day by day. See how the Radicle strikes down into the ground, (though the seed may be set the wrong end upwards) and the Plumule will lift its head above ground, for light and air. With many seeds, the Cotyledons rise above ground, and become green leaves; but with many Dicotyledons, they remain to give nourishment to the root, and then wither away.

Whilst your Young Plants are growing, we will collect some that are complete in every part, and ex-

amine all carefully. You will need all your little implements, to do the work neatly and handily, so have forceps, knife, needle, &c. ready. Gather some Buttercups, Anemones, Poppies, Wallflowers, Mallows, Pansies or Campions, and take up root and fibres: we will see the formation of the whole Plant.

A **Root**, is usually, that part of the Plant which fixes it to the earth, and remains underground. Some Plants, send out Roots from their Stems, which remain above ground, and fix to whatever they grow against. The Ivy, is one: and there are many others, which strike their roots into *other* Plants, and feed up them, to the injury of the Plants that nourish them. A Root has neither leaves nor scales upon it; but some plants have thick, underground Stems, which are often called Roots; the Potato we eat is a Stem, called a Tuber; for it has buds of Leaves upon it (called eyes, usually) which will grow into perfect Plants. The *real* Roots of the Potato are the fibres, growing out of the Stem. Pl. II. 15 t. Some Plants have underground Stems, called *Creeping-Roots*, which throw out Fibrous-roots at distances, like the Marsh Marigold, etc.

A **STEM** is that part of the Plant which rises immediately from the Root; and which bears leaves

and flowers on it. The Stem may become the Trunk of a Tree, with numerous *branches*, as well as leaves and flowers on it; or it may be no bigger than the Stem of the Anemone or Violet: if it have *leaves* on it, it is a Stem. Pl. I. d., II. A. 13.

STALKS on which Flowers only grow, are called PEDUNCLES; Pl. I. 4, e. f. g. h. If the Peduncle bear *smaller Stalks* with Flowers on them, those stalks are called PEDICILS. Pl. I. 4. f. Pl. II. 11. 12 R. P. If the Flower-stalk rise immediately from the Crown of the Root, it is called a SCAPE. The LEAF-STALK is called a PETIOLE, Pl. I. 3. C., Pl. II. 14. p., if the Petiole bear smaller Stalks with Leaves on them, those Stalks are called PETIOLULES. Pl. II. pp.

LEAVES are formed of LAMINA, (the blade) with nerves and veins. Sometimes the Petiole does not terminate with a Leaf, but only the nerves (or midrib) when it is called a TENDRIL. Each different form of Leaf is distinguished by a different name or term, for which I refer you to the Plates and Glossary.

BRACTS, are little scaly Leaves which grow on the Flower-stalks of some Plants. Pl. II. C. b. If these Bracts are arranged in a Whorl round the Stem they are called INVOLUCRE; sometimes having the appearance of Leaves, (as in the Anemone, Pl. II. A. I.)

but whatever grows in a Whorl *nearest* to the Calyx, is called an Involucre.

STIPULES are little scaly appendages to the Leaf-stalks, which sometimes have so much the appearance of Leaves (as in the Pea) that you may mistake them for leaves if you do not observe carefully that they proceed from the *base* of a leaf or leaves. Pl. II. 14. S.

FLOWERS contain the most important organs, and cannot be examined too closely; for how wonderful and beautiful is every part. Gather some of the new-blown Flowers of the Plants you have collected around you, and separate each part from the other carefully, beginning with

The CALYX, which is the outer Whorl of a Flower; and each division of it is called a SEPAL. Pl. II. C 1. S.

The COROLLA, is the next Whorl within, and each part of that is called a PETAL. Pl. II. C. 2. p.

The NECTARY, is a little tube or pouch within the Corolla,—but all flowers have not this organ. Pl. II. 3.

The STAMENS, are the next Whorl; the thread-like part, is the FILAMENT, the thicker part at the top, is the Anther. Pl. II. 4. 5.

The Pistil, or Pistils, form the centre of the Flower,

and are composed of two, or three parts. The lower part is the OVARY; the top part is the STIGMA; and there is often a thinner part between the two, which is called the STYLE. Pl. II. 4. 5. 6. and 8.

But I have not described every part of the beautiful Flowers yet. Do you observe a fine powder on the Anthers? that is called POLLEN, or FARINA. When the Flower first opens, the Anther has no powder on it, for that is contained within: open an Anther with your needle, and examine it through your lens: it is like a minute Seed-vessel, with its Seed within: and thus carefully protected till required to nourish the young Seeds (called Ovules) in the Ovary. The Stigma conveys this nourishment to the Ovules,—without it, they would never be perfected, consequently no more plants could be produced. Thus, you see, the smallest organs of the plant—the Pistil and Stamens, are the most important. How carefully they are protected, by Petals and Calyx, from rain and dew. When clouds gather, or the dew begins to fall, the Petals fold over the centre part, and in most plants, the Stalk bends down, and the Corolla hangs over the Stamens and Pistils, sheltering them as effectually as a small umbrella would.

“ Averse from evening’s chilly breeze,
How many close their silken leaves,
To save the Embryo Flower !
As if ambitious of a Name,
They sought to spread around, their fame,
And bade the Infant Buds proclaim,
The Parent’s valued power.”

But there are some Plants which have not Pistils and Stamens in the same Flower ;—the Bryony, Nut, &c. How can the Pollen be conveyed to the Stigma then ? you will ask. Another wonderful arrangement will show you how this *apparent* difficulty is remedied. Bees travel from Flower to Flower to collect Pollen, to make into bread, for their young ones to feed upon ; and to procure Nectar, of which to make their honey and wax. Now, when the Bees fly to the Pistil-bearing Flowers, with the Pollen on their legs, no doubt some will fall on to the Stigma ; and thus, it is supplied with as much nourishment as the Ovules require. And now, you see that Bees, who are indebted to the Flowers for Nectar and Pollen, are also very useful to the Flowers : and we shall find throughout Nature’s works, that each is necessary for the support of another, in some way,—

—————“ Each moss,
Each shell ;—each crawling insect holds a rank,
Important in the plan of Him who form'd
This scale of Beings,——Holds a rank, which lost,
Would break the chain, and leave a gap,
That Nature's-self would rue.”

The FRUIT must now be examined ;—it is, as you have already learnt, that part of the Plant which contains the SEED.

AN OVARY (which forms the lower part of the Pistil) is the Seed-bud, and contains the OVULES, which are the young Seeds. Pl. II. 8. o. Ovaries of different Plants, are often very differently formed : and have different names to distinguish them, when they become ripe Fruit. An Ovary is composed of one or more leaves, called CARPELS, folded together by their edges, so as to form a case that will hold the seeds ; and so firmly and closely are these Carpels united, that they never split open or apart, till the seeds are quite ripe. Some Carpels remain closed until the seeds begin to grow, and the Carpel withers away.

AN ACHENE, is a Fruit formed of one Carpel, which remains closed. Pl. II. 6. e. 9. a.

A FOLLICLE is formed of one Carpel, which splits open down the inner margin, when ripe. Pl. II. 4. and 7 f.

A **POD** is composed of two **Carpels**, (**Carpels** are also called **Valves**). If it is *long*, it is called a **SILIQUEA**. If a **Pod** is as *short* as it is broad, it is called a **POUCH**, or **SILICULA**. There are other **Pods** of another form and name; which we shall not meet with in the first Sub-class, therefore, will not examine at present.

These **PODS** (**Siliquea** and **Silicula**) have a thin partition down the centre, (with but few exceptions) that is called the **DISSEPIMENT**. Pl. II. 7. p 7. v. d. 7 c x. d. And the part to which the **Seeds** are attached, is called the **PLACENTA**: in *all* Seed-vessels, the part to which the **Seeds** or the **Ovules** are attached, is called the **Placenta**—some **Fruits** contain several.

1. II. 7 c x. p.

A **CAPSULE** is composed of more than two **Carpels** (or **Valves**). Pl. I. A 4. j. 4 k. B. 4 g. Pl. II. 7. c c.

A **BERRY** (**Bacca**) is a pulpy **Fruit**, with the seeds in the pulp. Pl. II. 7. 6.

A **SAMARA**, is a **Fruit** with a thin, wing-like addition to it. Pl. II. 7. S.

PERICARP is the name which applies to the shell, or rind of *all* **Fruits**, of *every* form:—and **OVARY** is the name for *all* **Seed-buds** (that is, the young **Fruits**); and all **Seeds** in the *young* state are called **OVULES**.

Some Fruits still bear the name of Carpels, when they are not united into a Capsule, and yet are different from an Achene, or Follicle. Pl. II. 7 m. 7 AS.

Now take your knife, and cut across each way different kinds of Seed-vessels; examine them through the Lens, and you will be able to distinguish each part, and, I hope, understand how the different names are to be applied.

I have now described every part of a Plant, except the Spines, Prickles, Hairs, and Glands: so often growing from Stems and Leaves.

SPINES are short, rigid branches, very hard and sharp-pointed. They are formed from the Stem, (of woody-tissue) and cannot be easily broken off. Pl. I. 7.

PRICKLES, are thorns growing from the Bark, and can be separated from it very easily. Pl. II. 13. p.

HAIRS are much finer, and named according to their size and quality—BRISTLES, DOWN, &c.

GLANDS are minute vessels, which contain some fluid. They often have the form of Hairs, but examine them with a microscope, and you will find them to be small tubes, with heads to them. The Stinging Nettle (*Urtica*) has such Glands, which contain a poisonous juice; the effects of it, you have often suffered from, I dare say. If only slightly brushed

against, the head of the Gland is knocked off, and the sharp point pierces through your skin, forcing the poisonous juice into you at the same time: it is that *poison* which causes so much pain.

All Glands are not poisonous; the beautiful crimson Glands of the Sundew (Pl. II. 11. g.) contain a clear liquid which looks like Dew upon the leaves. Some Glands are in the form of small tubercles, as we see in Pl. II. 13. t. Of what use these various juices are, to the Plants, or to Insects, is not well understood; and there are a thousand mysteries in Creation, not yet understood, or fully appreciated. But this is apparent to all who observe them—the Infinite Power and Wisdom of the Hand which made them—of His great benevolence in scattering in our path, so much that is beautiful and enjoyable,—so little of what is hurtful, or that will trouble us on our way.

“ Though each his Pilgrim path must tread,
Where thorns and briers are often spread—
Yet many a Floweret in its bloom,
Flings o’er this path its rich perfume;
And many a spot of brightest green,
To gem the wilderness is seen.

* * * * *

And God, who bade, with Power Divine,
The thorn to pierce—the weeds to grow,
He also gave the Sun to shine,
He also gave the Rose to blow.”—PRIVATE LIFE.

METHOD OF CLASSING PLANTS.

Plants are divided into 3 CLASSES.

- | | |
|---|--|
| I. DICOTYLEDONS (Exogens) have
2 Cotyledons. | } Both have
Cellular, and
Vascular tissue. |
| II. MONOCOTYLEDONS (Endogens)
have 1 Cotyledon | |

(Which contain *all* the *Flowering* Plants (Phanerogamous.)

- III. ACOTYLEDONS, (Cellulares), no Cotyledons. (Cellular tissue only): this Class contains all *Flowerless* Plants. (Cryptogamia.)

The two first CLASSES are divided in 6 SUB-CLASSES.

Dicotyledons.

- I. SUB-CLASS. THALAMIFLOREÆ. Petals several, distinct, and the Stamens distinct. Hypogenous.
- II. CALYCIFLOREÆ. Corolla and Stamens upon the Calyx. Perigynous.
- III. COROLLIFLOREÆ. Corolla of one piece. Stamens free from the Corolla, (hypogenous), or attached (epipetalous).
- IV. MONOCLAMYDEÆ. Perianth single, or wanting no Corolla or Calyx.

These (DICOTYLEDONS) contain more than 1130 plants.

Monocotyledons.

- V. PETALOIDEÆ. Flowers having a single perianth.
- VI. GLUMACEÆ. Flowers without perianth; but enclosed within chaffy scales.

MONOCOTYLEDONS contain less than 360 plants.

These VI. SUB-CLASSES are divided into 107 ORDERS.

The larger ORDERS are divided into TRIBES.

All ORDERS and TRIBES are divided into GENERA.

A GENUS contains one or more species.

Thus the whole 'Flora' is classed, and the same method will be followed in this work.

ON CLASSIFICATION.

" Then names are good, for how without their aid,
Is knowledge gained by man, to man conveyed ?
But from that source shall all our pleasure flow,
Shall all our knowledge be these names to know ?—
No,—let us rather seek in Grove or Field,
What food for wonder,—what, for use they yield ;
Some just remark from Nature's people bring,
And some new source of homage for her King."—CRABBE.

WE must understand something of the method of Classing Plants, before we begin to examine them,—though it will not be possible to explain, so as to be understood, the reason why they are thus classed, till we have examined many Plants with Botanical descriptions of every part.

You know that the First Class contains those Plants which are of the most perfect structure, and the most complete in all their organs. Now as there are more than 1130 distinct Species belonging to the First Class, you will readily suppose that there must be various degrees of difference amongst them,—and that

some more nearly resemble each other, than many in the same Class do. You will also see the necessity for dividing the whole into many lesser Classes, according to the various degrees of difference amongst them: or how could we find out the name of any plant we do not know, from amongst so many? I have written out the method of Classing the whole 'Flora' on one page, as easiest to refer to; it is too difficult for you to study at present, perhaps, but I hope before you get to the end of this volume, you will like to look it over, and be able to understand it, too.

You will see that each *Class* is divided into *Sub-classes*; which are again divided into many *Orders*: where the Plants are so similar in the arrangement of their more important Organs,—that we may well call them of one *Family*. But most of these Families are so large, and the variety of form and character so distinct, as will enable them to be again sorted into *Genera*: where so strong a *Family-likeness* may be found, that when you are well acquainted with one or two, you can soon recognize others of the same Genus; and, by a careful examination of them with the Botanical descriptions before you, be able to distinguish each *Species* in that Genus. Thus, the whole mystery is at

length unravelled: but you not only know the Name, and *all* the names of that Plant;—you have learnt many interesting particulars, and discovered the beautiful formation of every part:—the use of the Plant, and its value.

We will begin with examining Plants in the First Sub-class, which are the most complete, and distinct in all their parts. The Flowers are composed of four whorls, (with few exceptions), that is, four parts, arranged in distinct rings, one immediately beneath the other, on a Receptacle at the top of the Stem or Stalk.

The PISTIL, or Pistils, form the first Whorl.

The STAMENS, the second Whorl.

The COROLLA, (of distinct *Petals*), the third.

The CALYX, is the fourth and outer Whorl.

Gather a Crowfoot, and slip off each part of the Flower carefully, and you will see how all are arranged on the Receptacle.

This organization will gradually become less distinct and complete, as you proceed in the Orders; so gradually, that you will scarcely perceive any difference of value in the First Sub-class,—only a difference in arrangement of parts: but each Sub-class takes a decided step down; and the Fourth and last division

of the Dicotyledons, consists of Plants, which you would scarcely look upon as bearing any Flowers at all perhaps! No gay-coloured Petals,—seldom any Calyx,—only very small scales, called Perianth; but examine that with the Lens, and you will find that it contains Pistils and Stamens; and all Plants which possess those important Organs, are Flowering Plants. Many Trees, bearing what are called Catkins,—the Oak, Nut, Willow, &c., and your favorite Nettle, are of the Fourth Class.

Now, let us collect as many as we can of those Plants named in the first Order, and examine them, as we read the description of the character of the Sub-class, Order, Genus, &c.

I. ORDER. THE CROWFOOT FAMILY.

“ Ye Field-flowers, the gardens eclipse you, 'tis true,
Yet wildlings of Nature, I dote upon you,
For ye waft me to summers of old:
When the earth teemed around me with Fairy delight
And when Daisies and Buttercups gladdened my sight,
Like treasures of silver and gold.—CAMPBELL.

THE Crowfoot Family forms the first Order in the First Sub-class: the distinguishing character of which we will first learn. And remember that *all* the plants contained in this Sub-class, are of the same character, in these respects—though differing in many other parts of their arrangement; and also remember that *all* plants that agree with this description, are to be found in the First Sub-class.

* [I. Sub-class.—THALAMIFLORE.

Petals many, *distinct*, and (as well as the Stamens) inserted *upon* the Receptacle, (not upon the Calyx.) hence hypogynous; which signifies, beneath the Pistil. Pl. II. 4 and 6.

* All the Botanical descriptions given within *brackets* are from the “British Flora” of Sir W. Hooker and Dr. Arnott.

I. Order.—CROWFOOT FAMILY. Ranunculaceæ.

Calyx, mostly of 5 Sepals, frequently differing in form; Petals 5 or more often differing in form (deformed) *sometimes* wanting. Stamens, usually numerous, rarely as few as the Petals, and then, alternate with them. Ovaries, one or many; distinct or cohering. Fruit, mostly of several one-seeded Achenes, or of one or more distinct or united Follicles. (Pl. I. 4 f. Pl. II. 7. f. 9. a.); few have a Berry. Embryo straight, in the base of a horny Albumen. Herbs or Shrubs. Leaves often divided; and with more or less dilated Stalks. (Petioles) half-clasping the Stem. Acrid and poisonous.]

This description of the Order, includes all Plants of the garden and green-house, which are of the same Family also, remember. But when we are studying a *Genus*, we must only examine Wild Flowers: as cultivation often alters the character of a Plant in some respects.

The names of all the Genera in this Order, must now be given; with the number of Species in each Genus, against the name.

GENERA.

- | | |
|---------------------|------------------|
| 1. TRAVELLER'S JOY. | 1. GLOBE FLOWER. |
| 3. MEADOW RUE. | 2. HELEBORE. |
| 4. ANEMONE. | 1. COLUMBINE. |
| 1. PHEASANT'S-EYE. | 1. LARKSPUR. |
| 1. MOUSE-TAIL. | 1. MONKSHOOD. |
| 20. CROWFOOT. | 1. BANEERRY. |
| 1. MARSH MARIGOLD. | 1. PÆONY. |

We will now examine the first Plant in the British Flora. You will, I dare say, be surprised to find that the very *first* Plant should have Flowers with only three whorls!—for the Petals are wanting. But you must understand, that though the only *British* Species of Traveller's Joy is destitute of Petals, many of the Foreign Species (and there are more than 80) have both Petals and Calyx; and *all* (or nearly) have woody Stems; and Shrubs rank before Herbs, which die down to the ground, each winter.

We have a sweet Flower to begin with, its Almond scent quite perfumes the air wherever it may bloom.

[Genus.—TRAVELLER'S JOY. CLEMATIS.

Calyx of 4 to 6 Sepals. Petals *none*. Stamens and Styles numerous. Achenes, of one-seed; terminated by a long, feathery Awn. Named from a Greek word, which signifies, "the shoot of a Vine."

Species.—TRAVELLER'S JOY. CLEMATIS VITALBA.

Stem climbing; leaves winged; leaflets heart-shaped; and at the end, egg-shaped; (cardato-ovata) cut and lobed. The leaf-stalk often becomes a Tendril. The Flower-stalks, rather shorter than the Leaves.]

This Shrub is abundant in the middle and South of England; in hedges, on a chalky soil. The Flowers are of a greenish white, scenting the air where they

grow, from June to August. And equally adorning the hedges in Autumn, with their beautiful, long, glossy-feathered Awns, terminating each seed. Its pliant, weak Stems, fixed by their tendrils, to surrounding boughs, cause it to hang in such bower-like form, that it is well named the "Traveller's Joy." And how delightful a resting-place may be found under its shelter, from sun and shower,—with its sweet scent around!

"There's something in it tells,
Of wanderings ended brightly;—of the close
'Mid old familiar scenes,
Of the tried wayfarer's amount of woes.

How often have I paused,
A joyous traveller in sooth, to cull
A garland, of thy Flowers,
When with faint sweets, the Sun had filled them all."—

MISS TWAMLEY.

We will now take another Genus of the same Order; surpassing the first in beauty, but scentless.

[ANEMONE, OR WIND-FLOWER.—Anemone.

Involute of three divided leaves, (Pl. II. A. I.), more or less remote from the Flower. Calyx colored, of 5 to 9 Sepals, folded one over the other, when in bud (imbricated in æstivation). Pl. II. 10. Corolla none. Stamens and Styles numerous. Achenes pointed or Awned. Named from a Greek word, signifying "the Wind," because the flowers are

easily moved by the wind, or because they open in a season of high winds.

WOOD ANEMORNE.—*Anémone Nemorósa*.

Leaves, three united, (ternate) leaflets, lanceolate, lobed, and cut. Involucre similar to them, on Stalks; Stem, single-Flowered; Sepals 6, of a long-oval, (elliptical) point of the Achenes not Feathery.]

You must visit the woods, where this lovely Plant is blooming, to see it in all its beauty. Go, whilst the Sun yet shines upon it,—and the Flower is turned to the Sun with expanded Sepals, like a beautiful Star. Stay till the Sun declines, and the Flower droops its head, displaying the beautiful purple tinge, and veining of the outside of the Calyx; the elegant and graceful form of the whole plant,—its finely-cut leaves,—often tinged with purple also,—makes it one of the most lovely of our Spring Flowers. Called the “Queen of Wood Flowers,” by a Poet, who adds:

“ I love that Flower, so delicately fair,
So fondly bending on her slender stay,
As if in love with her own leaves; and where,
In field or grove,
Be leaves so exquisitely wrought as they? ”—

T. L. MERITT.

In the North this Plant grows in “ Moist pastures,

and on high mountains;—and seems more partial to the open heath, than to the shady wood.”* In the South of England, it certainly prefers the woods; how this difference of habitat is to be accounted for, I know not.

Genus. CROWFOOT. (*Ranunculus*.) This is the largest Genus, in this Family; and you will find that, generally, (as in this instance) the Name of the *Family* is the same as that of one of the *Genera* in that division.

[Calyx of 5 Sepals, rarely 3, not prolonged at the base. Petals 5, with a Nectary at the base. Achenes, without awns. Pl. II. 4. 6. Named from ‘*Rana*,’ a frog; these plants delighting to grow where frogs abound.]

Many of these plants are so similar, that it is only by examining carefully, and comparing every part,—some are to be distinguished from others. Flowers are never classed according to their colors, but according to some difference in *form*, (as you have learned in a former chapter). But we shall find that one or two colours prevail in nearly every Genus, and often through the *whole Order*. In this Genus the 7 first Species are *white*;—the other 13 Species are yellow.

* “Flora of Forfarshire,” by W. Gardiner.

The first 6 Species are *water-plants*; the flower about the size of the buttercup. Achenes, conspicuously, transversely wrinkled: the difference of character being chiefly, in the different shapes of their leaves, these six plants, may be considered rather as *varieties* than species.

The seventh Species, is rare, in the North. Many, with yellow flowers, are so similar, that, no doubt, you have been in the habit of calling three or four sorts 'Buttercups,' thinking them to be all alike. I will give the Botanical description of one of them; and then point out, in what respect the others differ. And how wonderful it is, that such slight differences should exist, and continue so constant to each species, that they can be classed and recognized as separate species, by those distinctions alone! Were they not thus diversified, for our close observation, and, above all, to show forth the infinite power and wisdom of their Maker?

[BULBOUS CROWFOOT. *Ranunculus bulbosus*.

[Calyx hairy, *reflexed*. (Pl. II. s 1.) Peduncles, *furrowed*, Stem upright,—many-flowered. Leaves cut into 3 petiolate leaflets, which are 3-lobed, or divided into 3 and cut. Achenes smooth, receptacle hairy. Stem 1 foot high, hairy. Upper leaves with linear segments. Root bulbous. Pl. I. A. 5.

"THE CREEPING CROWFOOT" has "Calyx spreading," not "reflexed," and the stalks are "furrowed."

"UPRIGHT CROWFOOT" has a "spreading Calyx" too, but the flower-stalks are *round*,—not furrowed.

"PALE HAIRY CROWFOOT," which does not flower till June, has hairy flower-stalks, as well as other parts, and its Achenes have little knobs (tubercles) on them. Pl. II. 13. t.]

You will now be able to distinguish these 4 species easily, I hope; and feel a new interest in gathering buttercups, almost equal to the great delight they afforded you in former days.

"THE BUTTERCUP,"

Is the Emblem of Youthful glee.

"Nor all-forgotten be those humbler flowers—
Daisies and Buttercups—the child's first love;
Which lent their magic to our guileless hours,
'Ere cares were known:
Ah! joyous time! through verdant meads to rove,
With wild flowers strewn,"—MERRITT.

I will describe one more plant in this Genus, because it greets us so early in the Spring; even "Coming 'ere the Spring-time:" to cheer us with its bright yellow flowers, and glossy leaves! Well has it been made the emblem of "Joy to come."

[LESSER CELANDINE. *Ranunculus Ficária*.

Leaves heart-shaped, on Stalks, angular, or scalloped. Sepals 3, Petals 9. Achenes smooth, blunt. Root consists of many long tubers, in a bunch. (facieulated.) Pl. II. 15. fa.

“’Ere a leaf is on a bush,
In the time before the thrush
Has a thought about its nest;
Thou wilt come with half a call,
Spreading out thy glossy breast,
Like a careless prodigal:
Telling tales about the Sun,
When we’ve little warmth, or none.”

WORDSWORTH.

MARSH MARIGOLD.—*Caltha*.

The Marsh Marigold, or King-cup; is so similar to a Buttercup, only larger; that it would be classed with the Crowfoots, but for its different *Fruit*; which is a Follicle.

[MARSH MARIGOLD.—*Caltha Palustris*.

Sepals 5, like petals, (petaloid). Petals none. Follicles 5 to 10 compressed, spreading, with many Seeds. Stem erect, rooting or creeping, Leaves heart-shaped, rounded (Pl. I. 3. a.) or kidney-shaped, (Pl. II. 14. r.) and finely scalloped. Sepals which soon fall off (deciduous.)]

Name signifies “a Cup,” which its Flowers resemble. This plant is common in marshy places; flower-

ing from early Spring till Midsummer. And what beautiful golden cups its Flowers are ! fit goblet for any King of the Fairies to drink his nectar from !

THE GLOBE FLOWER.—*Trolius Europæus*, is nearly allied to the *Caltha* ; but has Petals, as well as Sepals. It is a handsome pale yellow Flower, rare wild : but often to be seen in gardens.

The next Genus contains the two HELLEBORES, with their curious tubular Petals. Pl. II. 3 H. We should call them Nectaries, did they not form the next whorl to the Calyx. This delicate pale green Calyx, marked with a rich dark brown ; on peduncles, with bracts of the same pale tint of green : contrast well with the large, very dark green leaves below. They are bushy Plants, one or two feet high ; often seen in Shrubberies, but rare, wild. Their scent is unpleasant.

The three next Genera, are not common wild, but are such old favorites of the garden, that they must not be passed over unnoticed.

“ And can these belong to the same order as the Crowfoot ? ” you exclaim, as you observe the very different form of the Flowers. Examine them carefully, as you read the description of the ‘ *Order*, ’ you will see that in all important respects, they resemble

the *Flower* of the Crowfoot ; and the *Seed-vessel* of the Marsh Marigold, &c. The Seed-vessels of all this Order, are either Follicles, or Achenes.

Get some COLUMBINES, with flowers quite single, (not with one petal within another) and observe how beautifully they are formed, “terminating below, in a horn-shaped spur ; or nectary, it may be called.” The Columbine is named *Aquilegia*, on that account. *Aquila* being Latin for *Eagle*, whose claws, the nectaries resemble. While its name of Columbine, is from Columbo, a Pigeon ; whose neck and head also resemble these nectaries, in color as well as in form. These pretty spurred-petals, always remind me of Cornucopias ; and the seed-vessel, half-open, showing its ripe, dark seeds within, is a very good resemblance to a “horn of plenty” also. Pl. II. 4. and 7 f. The wild-flowers are of a dingy light purple ; on which account, perhaps, the poet tells us, that :

“In the bridal wreath ——

The Columbine amongst, they sparingly do set.”

The beautiful branching LARKSPUR, which is generally of a bright blue, in its wild state ; but often pink, and white, in gardens, (as is the Columbine also)—has

one of its sepals spurred, (Pl. II. 2. c. s.) and two of the four petals have appendages included within the spur. Here is a wonderful arrangement ! for what purpose we know not, but probably, these appendages to the petals, contain nectar, necessary for nourishing the ovules ; and are therefore thus carefully protected in the spur of the sepal,—from the reach of any insect. Its name *Delphinium*, is from *Dolphin* ; the shape of the upper sepal, and also, of the Flower-bud, resembling the head of the *Dolphin*.

“ The *MONK’S-HOOD*, or “ *Wolf’s-bane*,” (*Aconitum*), so dreaded for its poisonous qualities ; (which poison, we must remember is a valuable medicine,) has a yet more curiously formed flower, than the two last we have examined. Look beneath the upper sepal ; (shaped like a helmet or *hood*) and there you will find two petals, or nectaries on long stalks—of such elegant form as to give them the name of “ *Venus’ Doves*.” Pl. II. 3. M.

The name *Aconitum*, is from *Acone*, in *Bithynia*, or rather from the Greek word for ‘ *dart*,’ from its having been used, long ago, to poison darts with.

THE *PÆONY* is very rare *wild*,—but often to be met with in gardens. Open its large Follicles before they are ripe ; examine them and the seeds, through

your Lens,—when the valves are tinged with crimson, and the seeds are of the same color—they are very beautiful.

“—— Not to use alone, did Providence
Abound, but large example give to man,
Of grace, and ornament, and splendour rich,
Suited abundantly, to every taste.”

BARBERRY FAMILY.

“ The Barberry

No eye can overlook, when 'mid a grove
Of yet unfaded trees she lifts her head,
Deck'd with autumnal berries, that outshine
Spring's richest blossoms.”

WE will take but a hasty glance at the Second Order, which contains but two plants. The BARBERRY (*Berberis vulgaris*), and the BARREN-WORT (*Epimedium alpinum*). The latter is not common, but you probably know the pretty Barberry shrub, with its bunches of yellow flowers, on a pendulous stalk. The fruit is a beautiful oval-shaped berry,—scarlet, with a black eye; of acid flavor, often preserved, and also pickled. Though the flowers have an unpleasant scent,—bear with it, whilst you try the following experiment. Take your needle, and apply the point of it to that end of the stamen which is attached to the receptacle, when you will see the stamens instantly spring forward towards the stigma.

III. ORDER. THE WATER-LILY FAMILY.

“ There the bright Water-Lilies blow,
There stems with gorgeous blossoms crown'd
'Mid shield-like leaves, that float around.”—BP. MANT.

THE Third Order must have our particular attention, for it contains the “Queen of our Water-flowers,” and the largest, and most beautiful of all our wild-flowers ! We must procure both flower and seed-vessel, if possible ; and the plant is not uncommon in “Lakes and still waters.” The structure of the whole plant is beautiful and singular.

[III. Order. WATER-LILY FAMILY. (Nymphaeacæ.)

Sepals, about 5, often gradually passing into the numerous petals, and these again, into stamens, which arise from a fleshy disk, surrounding, more or less entirely, the many-celled, and many-seeded Ovary. Stigma, target-shaped (peltate) rayed. Seeds, in a gelatinous case, (aril.) Albumen farinaceous, Embryo, enclosed in a membranous bag. Cotyledons leafy, (foliaceous.) Aquatic plants, with target-shaped, (Pl. II. 14. P.,) or heart-shaped leaves, and magnificent flowers.

2. Genera.

1. WHITE WATER-LILY.

2. YELLOW WATER-LILY.

WHITE WATER-LILY.

Nymphæa alba.

Petals and stamens inserted upon a fleshy disk or covering to the ovary, so as to rise apparently from it. Berry, many-celled, and many-seeded. Leaves, heart-shaped, entire, (of one piece, without divisions). Stigma, of 16 ascending rays. Named *Nymphæa*, from inhabiting the waters: as the Nymphs or Naiads were wont to do.]

If you wish to keep any of the flowers in water, you must observe that the *flowers* touch the water: for the stalk is formed to hold air, and will not convey water to the *flower*:—but being filled with air, the stalk is made so buoyant, as to support the flower above the water. “But when the flower has shed its calyx and petals, and the seed-vessel has ripened its seeds; the stalk cannot support its increased weight; (deprived of the aid of the sepals and petals also) nor is it needed, for the seed-vessel must now deposit its seeds on the soil, at the bottom of the lake. The globes then decompose into a gelatinous mass, and the disengaged seeds become deposited therein. If the bed of the lake or river, be rich in soil, the vegetable decomposition serves to enrich it still more: if pebbly, the gelatinous mass, forms a nucleus around the seeds, in which they may quickly germinate. When this is

done, a bulbous root, descending from each little seed, fixes itself in the soil, or amongst the pebbles, and forth from each, springs up a leaf-stalk, which often rises to a considerable height from out the bosom of deep waters. And thus, from year to year, the lakes and rivers of this, and other countries, are beautifully varied, with the floating globules of the Water-lily.”*

The largest flower and leaf that have yet been discovered, belong to a plant in this family—the “*Victoria Regia*”—whose blossoms are 15 inches, and leaves 6 feet in diameter. And that wonder of the vegetable kingdom, may be seen to great advantage in the Kew Gardens; where it grows in a massive stone basin; with other curious aquatic plants, in smaller basins, in the same glass house. But should you be so fortunate as to visit those delightful gardens be prepared not to find the ‘*Victoria*’ so large as in its native waters,—only quite as beautiful.

* “Flowers of the *Matin and Even-song*,” a charming little volume, by ‘*Mary Roberts*.’

THE WATER-LILY. Emblem of "Purity of heart."

"The Water-Lilies, that are serene in the calm, clear water ; are no less serene among the black and seowling waves."—*Lights and Shadows of Scottish Life.*

" Oh, beautiful thou art,
Thou sculpture-like, and stately River Queen !
Crowning the depths, as with the light serene,
Of a pure heart.

Bright Lily of the Wave !
Rising in fearless grace with every swell,
Thou seem'st as if a spirit meekly brave
Dwelt in thy eell.

What is like thee, fair flower,
The gentle and the firm ? thus bearing up
To the blue sky, that alabaster cup,
As to the shower ?

'Tis Faith,—oh, is not Faith,
Like thee, sweet Lily, springing into light,
Still buoyantly above the billow's might,
Through the storm's breath ?

Yes ! link'd with such high thought,
Flowers, let thine image in my bosom lie !
Till something there, of its own Purity
And Peace, be wrought."—MRS. HEMANS.

The YELLOW WATER-LILY.—*Nuphar Lutea*, is frequent in lakes and ditches also : and though not so large as the White Water-Lily, is a very handsome Flower. The scent of the Flower, so much resembling that of brandy—and its curious flagon-shaped Fruit, has given it the name of Brandy-bottle.

The other species of Yellow Water-Lily, is smaller, and only to be found in the small, Highland Lakes.

IV. ORDER. THE POPPY FAMILY.

“ Ah ! mickle is the powerful grace that lies,
In Herbs, Plants, Stones ; and their true qualities.
Within the infant rind of this small flower,
Poison hath residence, and med'cine power.”

HERE is a beautiful Order of Plants for examination !
so large, and complete in every part of the Flowers.
We must examine the Seed-vessels (these Fairy-cups
and vases) through the Lens.

[IV. ORDER. POPPY FAMILY.—Papaveraceæ.

Calyx of 2 Sepals (rarely 3) which fall off when the bud opens. Corolla of 4 Petals, rarely 6. Stamens numerous. Ovary one-celled. Stigma lobed or rayed. Pl. I. 4 j. Fruit dry, with 2 or more Placentas, usually projecting towards the centre : forming complete, or incomplete divisions in the capsule. Pl. II. 7. c^x p. Many-seeded. Embryo, in the base of a fleshy albumen. Herbaceous Plants, with Leaves alternate.]

All Poppies contain Opium ;—a juice, which is a deadly poison. It is often prepared as a medicine—called Laudanum ; which, taken in moderate quantity,

has power to ease many a severe pain. The *seeds* of *all* Poppies (except *one Foreign* species) are mild and oily. And many Plants which contain wholesome properties in one part of their organization ; have deadly poison in another. A poison which is probably equally valuable, as a medicine, or in the manufacture of some useful article,—as the other production of the Plant.

“ In human works,—though labored on with pain,
A thousand movements scarce one purpose gain ;
In *God's*,—one single, can its end produce,
Yet serve to second too, some other use ! ”—POPE.

5. Genera.

5. RED POPPY.

1. ROMERIA.

1. WELSH POPPY.

1. CELANDINE.

2. HORNED POPPY.

[POPPY.

Papáva.

Sepals 2 or 3. Petals 4—6. Stigma sessile, radiated. Capsules, with the seeds on placentas, projecting towards the centre of the single cell, and escaping by pores, beneath the rayed, sessile, stigma (pl. 1. 4 j.) Named Papava, because the Opium was given in pap, (papa in Celtic) to induce sleep.

COMMON RED POPPY.

Papáva Rhæas.

Capsule smooth, (glabrous) nearly round, (globose). Scollops or lobes of the Stigma, over-lapping each other at the

margin. Filaments awl-shaped, (subulate) stem bristled. Leaves once or twice divided, (pinnatifid) sessile. There are two varieties. Var. A. Bristles of the flower-stalk pressed upwards,—close to the stalk, (appressed). Var. B. Bristles of the flower-stalk, spreading.]

This brilliant flower, which blossoms from June to October, is not the only Poppy which makes our corn-fields so gay—though it is so similar to the other two, that you will scarcely distinguish the difference unless pointed out. Examine the Capsules.

“ROUND ROUGH-HEADED POPPY.” (*P. hybridum*) has a very *hairy* capsule, with *spreading* bristles.

“LONG, SMOOTH-HEADED POPPY.” (*P. dubium*) has a smooth and *oblong* capsule.

There is another, smaller red Poppy, which, (as the other species often grow very small on poor soil) I will give the description of also.

“LONG, PRICKLY-HEADED POPPY.” (*P. Argémone*). Capsule, larger at the upper part, (clavate), hairy, with *erect* bristles.

These largest, and gayest of our field-flowers, are the only *red* flowers we have in this country, except the bright Pheasant’s-Eye, which you may know as a garden flower, and the Scarlet Pimpernel. Red, being the color which most prevails in warmer

climates. And as our red flowers are generally to be found in corn-fields, (the Pheasant's-eye, *only* there) they were probably first introduced into this country, from the same fields abroad, that the corn-seed was procured from. The scent of the Poppy partakes of its poisonous qualities, and Poppies are called 'headaches,' in some parts of England, on that account. How beautifully the petals are crumpled, and puckered in the bud! The way in which the petals or sepals of a flower are folded, is often a characteristic of the Genus. This would be described as "crumpled in æstivation,"

THE WHITE POPPY, (*P. Somniferum*) is the species cultivated for the sake of its opium, which is collected from the unripe capsule. It is only found *wild* where it was formerly cultivated.

"From the Poppy, I have ta'en
Mortal balm, and mortal bane,
Juice, that creeping through the heart,
Deadens every sense of smart;—
Doomed to heal, or doomed to kill,
Fraught with good, or fraught with ill.—

MRS. R. ROBINSON.

THE WELSH POPPY. *Meconopsis Cambrica* is separated from the other Poppies, from its capsule

having a *style* to its Stigma, and *thread-like* placentas. Its name signifies "resemblance to a Poppy." It is rare wild, but common in gardens; and very pretty. Of a pure yellow—sometimes tinged with red on the edge of the petals; but all change to an orange-color if dried.

The HORNED POPPY (*Glaucium*) is separated into another Genus, on account of its different seed-vessel, also. We will give its botanical description, for it is the great ornament of our sandy sea-shores, where we may hope to find it, e'er very long.

[HORNED POPPY. *Glaucium*.

Sepals 2, Petals 4, Stigma, 2-lobed, sessile. Pod, long and narrow, (linear) the two placentas at length connected by a spongy dissepiment,—hence, 2-celled, 2-valved; seeds dotted without a crest. Named from the seagreen hue (glaucous) of its leaves and stem.

YELLOW HORNED POPPY. *Glaucium Luteum*.

Pod, minutely tuberculated (worty pl. II. 13. t). Stem-leaves (cauline leaves) embracing the Stem, (amplexicaule) Stem smooth, 1 to 2 feet high, much branched. Leaves rough; flowers large, handsome. Succeeded by a pod from 6 to 10 inches long.]

" There, bright as gems of fairy lore,
Or Eastern poet's dream,
The Horned Poppies gild the shore,
With sunny gleam.

The threatening clouds and tempests dark,
No terrors have for them,
When billows whelm the gallant bark,
From stern to stem."

The other species of Horned Poppy is red, and very rare, "said to have been found in Norfolk."

We will examine one more plant in this order, because its general appearance is so different from the Poppies, that when you meet with it, you will pass it by, as belonging to another order, probably. Its English name, would lead you to place it amongst the Crowfoots; but look at its seed-vessel,—it cannot belong to that family.

[CELANDINE. *Chelidonium*.

Sepals 2, Petals 4, Stigma 2-lobed, Pod above the Calyx (superior) long and narrow, (linear) 1-celled, 2-valve. Valves, separating from the base upwards. Seeds crusted. Name signifies a Swallow: probably from the plant flowering about the time of the arrival of those birds.

Common Celandine. *Chelidonium Majus*.

Stem, about 2 feet high, slightly hairy, brittle, full of a yellow, foetid juice. Leaves pinnate, with about 5 decurrent leaflets; which are broadly egg-shaped, lobed and scollopped, sometimes jagged. Flowers in long-stalked umbels, (*see Glos.*) yellow, rather small. Pod long, somewhat turgid. Pl. I. 4. e. i.]

The leaves of this plant are its great beauty ; “ large, elegantly-shaped, and of a transparency which shows the delicacy of their texture, as the yellow light shines through them.” And their brilliant tint of green, can scarcely be surpassed by any plant. The Celandine is common in waste places, near towns. Hold it carefully, when you gather it, for it is full of a poisonous yellow juice. You observe that its name is the same as a species of Crowfoot (the *Lesser Celandine*), and there are many plants which bear the same English name, but which are so different in some part of their organization, as to stand wide apart in Botany. If the first Latin (or Botanic name) be the same, you may then know, that the plants are undoubtedly of the same Genus.

THE FUMITORY FAMILY.

“No plot so narrow be, but Nature there,
No waste so vacant but may well employ,
Each faculty of sense, and keep the heart
Awake to love and beauty.”—COLERIDGE.

This order contains but two Genera; and the Flowers are so different in form, from any others in this Sub-class, and so similar to many in the next Division, that it is only by careful examination we discover that “the Petals and Stamens are inserted *upon the Receptacle*,” (Hypoginous) and not upon the Calyx) therefore they must be placed in this Division: but must stand in an Order by themselves.

Two of the FUMITORIES (Fumária) are so common in Cornfields, Gardens and waste places; that a short description will enable you to recognize them. The Flowers are very like those of the Purple Clover; but, arranged singly, on Pedicils, in a Raceme, Pl. II. 11. The Stalks, and finely-cut leaves, are of a very blue green, and brittle.

The YELLOW CORYDALIS, is oftener seen in gardens, than wild: and as in its wild state it is only

found on *old walls*, was probably first introduced into our gardens, from some other country. The Flower is larger than the Fumitory (Pl. II. 2. c.) And it is altogether, a most ornamental Plant for Walls or rockwork; growing in elegant tufts; with numerous bright yellow Flowers in Racemes, and beneath them, beautiful, bright green Leaves,—much cut and divided. The Stems are very brittle, and the Pods open, and show their glossy seeds, as black as ebony,—as soon as ripe.

TO THE YELLOW CARYDALIS.

“I’ve seen thy sun-gilt Flow’rets smile,
Upon the crumbling Tower,
As if designed to reconcile,
The past and present hour.

Ruin,—thou teachest us,—is more,
Than greatness past away,
Time’s shadowy pinion hovering o’er
And carrying decay.

Heaven, as it paints thy cheering hues,
Approves of that decay,
And bids us fix our eyes on views,
Which *cannot* pass away.—MS. T. T.

VI. ORDER. CRUCIFORM FAMILY.

“There spring the living herbs, profusely wild,
O'er all the deep green earth, beyond the power,
Of botanists, to number up their tribes.”—THOMPSON.

Though Botanists cannot yet “number up the tribes” of plants, spread over the wide world: you will see, as you proceed, how beautifully every plant of our own Island, is distinguished and classed, so as to make it an easy task to us to “number up *their* Tribes.” And you will also see, what careful, and close examination are necessary, for classing plants correctly, where many are so very similar as they are, in this Order: and how impossible it would be to find out the name of any *species*, if they were not thus divided and subdivided. Though not nearly so attractive in appearance, and poetical associations, (with the exception of the much-prized Wallflower) as the Orders we have already examined; we shall find it highly interesting. Gather some Wall-flowers, Stocks, Cabbage, or Cuckoo flowers (Pl. II. 2 W. 5. and 7. p. &c.); and examine them as we read the character of the Order. Its name, “Cruciform”—

(in the form of a cross,) is from the flowers being formed *invariably* of 4 distinct petals, which therefore divide in the form of a cross. And *all* flowers thus formed, (with the exception of the Celandine, and perhaps one or two more) have 6 *stamens* and belong to the Cruciform Family. It is very easy to distinguish plants of this *Order*, but not so easy to distinguish *Species*; as we shall find.

[VI. Order. CRUCIFORM FAMILY. (Cruciferae.)

Calyx of 4 Sepals. Petals 4. Stamens 6 (usually) 2 shorter than the other 4. (tetradynamous,) 2, of the Stamens, solitary, alternate with the petals; 4, opposite to them, in two pairs. Ovary, and style, 1. Hypogenous glands, at the base of the solitary Stamens. Seed-vessel, usually, a pod or pouch. 2-celled (rarely one) 2 valved, the valves opposite the shorter Stamens (Pl. II. 5.) sometimes valveless. Seeds on marginal placentas between the longer Stamens; without albumens. Radicle curved.]

Small as the seeds of most of the species are, the difference in position is so marked, that they are divided into 3 *Sub-Orders*, from this wonderful arrangement, only. Thus

I. SUB-ORDER. Cotyledons flat (plane) parallel to the Dissepiment, and with their *edges*, applied to the Radicle. (accumbent. o=.)

II. SUB-ORDER. Cotyledons plane, with their *backs* turned to the Radicle. (incumbent o||.)

III. SUB-ORDER. Cotyledons folded, and embracing the Radicle. (Conduplicate. $o > > .$)

These Sub-Orders, are divided into Tribes; here, the Fruit, is the distinguishing character. It is either a long Pod; or a short Pod, called a Pouch. To distinguish them from other Pods, of a different character;—another name is given to these. The long Pod, is called a Siliqua: and the Pouch, is a Silicular, (or Siliquosæ & Siliculosæ.)

Now though there is much in the above descriptions, that we cannot study, at present: or that is too minute to be distinguished, without the aid of a microscope: yet it will assist us to understand; and to appreciate more highly; the whole arrangement; and to see how wonderfully, and perfectly all God's works are formed for each to take its right position, in the Order of Creation: and we are rewarded too, in every research; with some new and curious difference;—and may rejoice in the prospect of fresh discoveries to be made, in never-ending succession.

All the Cruciform Plants are herbs; and amongst them are some of our most valuable vegetables. But we will begin with the first division; and examine our “true Friend” the Wallflower.

[I. SUB-ORDER. (Pleurorhigæ.) Cotyledons accumbent o=.

1 TRIBE. (ARABIDÆÆ.) Pod Siliqua, valves flat, concave or slightly keeled. Dissepiment narrow in the broadest diameter.

Observe that in every Sub-Order, the Tribes with long Pods, are classed *before* the Tribes, with Pouches,—and that those Species which have Pods without *valves*, (of which there are very few) are placed last in the Order.

XVII. GENERA in the first Sub-Order.

SILICULA.

2. Stock.
1. Wall-flower.
2. Winter-Cress.
1. Tower Mustard.
5. Rock-Cress.
1. Coral-root.
4. Bitter-Cress.
3. Water-Cress.

SILICULA.

2. Horse Radish.
2. Scurvy-grass.
1. Koniga
5. Whitlow-grass.
3. Penny-Cress.
1. Hutchinsia.
1. Teesdalia.
1. Candy-Tuft.
1. Sea Rocket.

[The WALL-FLOWER. Chéiranthus Chéiri.

Pod compressed or two-edged, calyx erect, two opposite sepals bagging (saccate) at the lower part. Stigma placed on a style, two-lobed, (pl. II. 5.) Hypogenous glands, none, between the longer stamens. Leaves, lance-shaped (pl. I. 3, 6,) pointed,) with twice divided hairs, close to the leaf, (appressed,) lobes of the stigma spreading, (patent) stem shrubby at the

base. Named from the Greek, which signifies "the hand," and "a flower," because from its fragrance one delights to carry it in the hand.]

These flowers are never found *wild*, but on old walls, but—

"Call it not wasted, the scent they lend,
To the breeze, when no step is nigh;
Oh thus, for ever, the earth should send,
Her grateful breath on high."

As the Wall-flower is plentiful, in a wild state, in the South of Europe, we may suppose that it was introduced into this country from there; and one of the first plants cultivated in our gardens; as it is found on the ruins of our oldest buildings. Turner, (one of the earliest writers on flowers) calls it "Wall-gelever," (probably a corruption of Giroflée, its French name,) or "hartis-ease." But we may gratefully look upon it, as one of our own dear flowers, when it has clung so faithfully to the walls which first sheltered it;—through all changes, and disasters, even to their days of desolation and decay. One beautiful ruin, richly decorated with glossy green ivy, and this sweet flower; recurs to my mind, as it appeared on a lovely May day,—the brilliant sun giving to the flowers, a yet

more golden hue. All the scenery around, the bright blue sky above, and the sparkling sea in the distance, were in perfect harmony with the magnificent ruin; and all was enjoyed in the company of dear, kind friends, one of whom, ever indulgent to my request for a poetical remembrance of a scene or flower, soon placed before me the following lines:—

Lines on the Wall-flower growing on the Ruins of Pevensey Castle, May 13th, 1850.—Where King William the Conqueror landed, 1066.

Hail thou! that shed'st the smile of May,
On ruins hoary,
And crownest desolate decay,
With golden glory!

Where haughty banners hung of old,
The foeman braving,
Thy blazon bright, is o'er the hold,
Triumphant waving.

Where culverin, or quarrel frowned,
Death, vengeance dealing;
Thou clim'st, and strait we feel around,
Soft fragrance stealing.

So World,—above thy Babel wide,
The *Cross* shall flourish,
E'en so, the ashes of thy pride,
God's plant shall nourish.—ANNA J. VIDAL.

BITTER-CRESS. (Cardámine.)

We will examine another of the largest and prettiest flowers in this tribe, and which is so common, that you will have little difficulty in procuring it. But there are three species, so much alike, to an unpractised eye, that I must describe the difference of each, from the other.

“THE LARGE FLOWERED BITTER-CRESS,” has white flowers with purple anthers.

“THE HAIRY BITTER-CRESS” is smaller; has pale lilac flowers, and blunt stigma, with very short style.

“THE COMMON BITTER-CRESS,” has a round stigma, straight style—blush-colored flowers; and grows one or two feet high.

[BITTER-CRESS. Cardámine.

Pod Linear, the valves flat, generally separating elastically, (Pl. II. 7 V.) nerveless. Seed-stalks slender. Name signifies, “the heart, and to fortify,” from its supposed strengthening qualities.

COMMON BITTER-CRESS, OR CUCKOO-FLOWER. (Cardámine
Praténsis.)

Leaves pinnate, radical leaflets, roundish, toothed; stem-leaves (*cauline*-leaves,) lanceolate, nearly entire (in one, undivided piece,) style straight, stigma round, (capitate.)]

This plant is plentiful in early spring, as is also the “Hairy Bitter-cress” which it so much resembles. It is to be found in moist meadows ; has flowers rather larger than the Wall-flower—of a blush-color, and delicately veined with lilac. It is sometimes found *double* ; when its leaflets occasionally produce new plants ; striking roots into the ground, whilst still attached to the parent plant.

WATER-CRESSES. (*Nasturtium officinalis*,) is a plant of the same tribe : and considered so wholesome a vegetable, that it is cultivated in numerous streams, in many counties around London, for the London market alone. The flower of the garden, usually called *Nasturtium*, (but properly, a *Tripitolum*,) was so named from the leaves and stalks having a flavor not unlike that of water-cresses.

We will now examine a dear little plant in the second tribe ; with a *short* pod or pouch, (*silicula*.) Bring the *whole* plant : root and *ripe seeds*, will not make it too heavy to carry—the *largest* plants being only four inches high ; whilst the smallest, do not exceed an inch in height, *when full grown* ! But though so small, we can see its distinguishing dif-

ferences, very well, after having learnt the character *of the order*, from larger flowers.

[II. TRIBE. (Alyssineæ.) Pouch, with the dissepiment in the broadest diameter (Pl. II. 7 p.) valves flat or concave.

WHITLOW GRASS. Drába.

Pouch entire, oval or oblong; valves flat, or slightly convex. One-nerved at the base, nerved or veiny upwards. Cells many seeded, seeds, not margined. Filaments simple. Name signifies 'acid,' as are the leaves of many of the tribe.

COMMON WHITLOW GRASS Drába Vérna.

Flowers-stalks (Scapes,) without hairs; leaves lance-shaped, somewhat toothed hairy. Petals white, deeply cloven. There is a variety with a swollen pouch.]

This little plant, may be found in flower, as early as March; on walls, rocks, and dry banks. It ever prefers the highest ground; and may be seen in a church-yard, growing on the top of many a grave, but not on the ground below, though its seeds must be thickly scattered there, each year. It is as constant to the remains of the departed, as the Wall-flower is to its mouldering wall.

“ And thou a resting place, hast found,
Which none disputes with thee,
The silent church-yard's lonely bound,
Where sweetly on the hallow'd ground,
Thou growest wildly free.

Aye, mantling o'er each nameless mound,
Thy small green foliage clothes the ground,
And thy white blossoms wave ;
Wet, with the late descending shower,
Beneath the yew's funereal bower—
And mourners, at the evening hour,
Behold and bless the gentle flower,
That decks the lov'd one's grave."—

A. STRICKLAND. (adapted.)

III. TRIBE. (Thlaspidæ.) Pouch compressed with the dissepiment very narrow, in the narrowest diameter : valves keeled or winged.

CANDY-TUFT (*Iberis amara*) is the only plant in this tribe, familiar to you probably ; and that, is supposed to have been introduced into our corn-fields with corn seed. Its name is from Iberia, (Spain.) where many of the genus grow. The Petals being of unequal size, and the flowers, collected in such close heads, give it a different appearance from most cruciform flowers—but if you examine the flower you will see that it has four separate Petals, six Stamens, and its Fruit is a Pouch ; therefore it belongs to this family. Its name *Amara*, signifies that it is very bitter.

II. SUB-ORDER (Notorrhizæ) Cotyledons incumbent (○. ||.)

10 GENERA.

SILICUA.

- 1 Dame's Violet.
- 4 Hedge Mustard.
- 1 Garlic Mustard.
- 2 Treacle Mustard.

SILICULA.

- 1 Gold of Pleasure.
- 1 Awlwort.
- 1 Shepherd's Purse.
- 2 Wort-cress.
- 5 Pepper-wort.
- 1 Dyer's Woad.

SHEPHERD'S PURSE.

We will examine one well known plant in this division, a greater favourite with the birds than with us, perhaps. But do not we like the "Shepherd's Purse," as the food of the small birds, we like so much—and because it is scattered so freely for their use? A traveller* in Tibet, found it growing wild in one spot there, though its true station is far, far north of that warm country.

[VII. TRIBE (Lepidineæ) Pouch, with the valves keeled or convex : or fruit short and indehiscent, two-celled ; dissepiment very narrow.

SHEPHERD'S PURSE. *Capsella Bursa Pastoris*.

Pouch, with the sides compressed, heart-shaped reversed (*ob-cordato*.) Pl. II., 7. o. wedge-shaped or oval. The valves

* Dr. Hooker.

boat-shaped, without wings; cells, many-seeded. Plant downy or hairy. Stem leaves (cauline leaves) sessile, lance-shaped; with an arrow-head, (lanceolate-sagitate) very variable in height, from three inches to one or two feet! Name, the diminutive of Capsula—a Capsule or “*little box.*”]

“ How many plants, we call them weeds,
Against our wishes grow,
And scatter wide their various seeds,
With all the winds that blow.

Man grumbles, when he sees them rise,
To spoil his husbandry;
Kind Providence this way supplies,
His lesser family.

Scattered and small they 'scape our eye,
But are not wasted there;
Safe, they in cleft and furrows lie
The little birds know where.”—WORDSWORTH.

Some of the Siliquosæ of this Sub-order, are common in our hedges. Hedge Mustard, (*Sisymbrium officinale*) an upright plant, one or two feet high, with *very* small yellow flowers, and deep-cut leaves. Thalecress (*S. thalianum*,) though common, is not so often seen. It is a small, slender plant, from six to ten inches high, with small white flowers, and grows on walls, dry banks, &c. Garlic mustard (*Aliaris officinalis*,) is as common as the hedge mustard, and more conspicuous:—has larger flowers, (white,) large, glossy

heart-shaped leaves, and often grows to the height of two or three feet. Some think it an agreeable vegetable, having a flavor of Garlic, which has probably given it the name of "Sauce alone." I will not describe species which are not common, but proceed to

III. SUB-ORDER.

And this division contains nearly all the most valuable and useful of the cruciform plants. The Cabbage is one, and how valuable a vegetable it is to the poor man; for it will take root readily and flourish, on any waste ground; near the sea, and on the banks of salt rivers, where other vegetables will not grow.

[III. SUB-ORDER. (Orthoploceæ) Cotyledons conduplicate. (o ▷ ▷.)

6 GENERA.

SILIQUA.

SILICULA.

6 Cabbage, Turnip, &c.	1 Cress Rocket.	} Pods without Valves.
4 Mustard.	1 Kale.	
2 Rocket.	2 Radish.	

IX Tribe. (Brassicææ.) Pod Siliqua. Dissepiment narrow.

CABBAGE. TURNIP. RAPE. Brassica.

Pod two-valved, (with a sterile beak or with a one-seeded, or several-seeded beak.) Seeds in a single row. Calyx erect. Name derived from the Celtic, bresic (modern Gaelic praise each,) a kind of Cabbage, or rather pottage made of it.

SEA CABBAGE. *Brassica Olerácea*.

Root, stem-like (Caullescent,) Cylindrical, fleshy. All the leaves smooth, of a blue-green (glaucous,) waved and lobed. Upper ones oblong, sessile. Leaves thick, fleshy, (subcarnose,) the upper ones undivided but toothed. Varying in height from one to two feet. Flowers rather large, pale yellow. It grows on Cliffs, by the sea, (in Devon, Cornwall, Dover, Yorkshire, Wales,) and is the origin of our garden Cabbage.

TURNIP. *Brássica Rápa*.

Root round, (orbicular) or oblong; fleshy: radical leaves, lyre-shaped, (lyrate, pl. II. 14 L.) rough.

Lower stem-leaves, cut irregularly (incised), upper ones heart-shaped, approaching to oval (cordato-ovate) tapering to a point: clasping the stem, upper leaves, nearly smooth, all, more or less toothed. Varying exceedingly, in height, according to soil. Flowers yellow, common in borders of fields: road sides, &c.]

THE COLE, OR RAPE-SEED, and the NAVEW or SWEDISH TURNIP—are very similar plants to the Turnip; so similar, that they may be called *varieties* only; and not *species*. Their leaves are *smooth*, and of a *blue-green*, and the Rape has a *slender root*. Its seed is very valuable for its oil. The seeds, after pressure, are made into cakes, and used for feeding Cattle; and as manure.

MUSTARD (*Sinapis Nigra*,) is another of the

useful plants in this Tribe: being the mustard used at our tables. It is, in appearance very like the Turnips; but is placed in a separate Genus: from having a *spreading* calyx (patent) instead of *erect*; and smooth, quadrangular pods; with narrow upper leaves, by which differences you can distinguish it perhaps; but these yellow-flowered Mustards and Turnips are so similar that it is rather difficult to identify them sometimes.

Another MUSTARD; CHARLOCK, (*S. arvensis*) is a troublesome weed to the farmer; but doubtless, many a bird and insect, find it a valuable food and shelter. Its flowers are yellow, leaves large, bristly and dark, stem 1 to 2 feet high, rough, pod smooth, with many angles, turgid and knotty, longer than the slightly compressed Beak.

The WALL-ROCKET. (*Diplotaxis tenuifolia*,) has pale yellow flowers, as large as the Wall-flower; with long, narrow leaves. Not a common plant—but adorning many a ruin; and nowhere can it be looked upon with greater interest than on the venerable ruins of St. Alban's Abbey, where

“Still she seeks, with kind, unceasing aid,
To hide the fearful wreck which ruthless time has made.”

XI. TRIBE, contains two valuable esculents. The Sea Kale, (*Crambe Maritima*) is one. It grows in sandy, stony soils, on the sea coast; its flowers are white; leaves, roundish, wavy, toothed, and (as well as the stem) smooth.

The Radish, which is the last Genus of this large family—we will examine botanically: we shall now find “pods without valves.”

[XI. TRIBE (*Raphanæ*) Fruit, with the pod, or lower part, abortive, and stalklike, consisting of a beak without valves, divided transversely into one-seeded cells, sometimes separating.

RADISH.

(*Raphanus*.)

Fruit without valves, or a dissepiment, with a long style, several-seeded. Calyx erect.

Name, from the Greek “quickly” and “to appear,” from its rapid growth.

WILD RADISH, or JOINTED CHARLOCK, (*Ráphanus Rha-phanistrum*.) Leaves simple, lyrate, fruit jointed, styles two or three times longer than the last joint. Leaves stalked and rough. Flowers *yellow*, (rarely reddish) veined.]

It is probably a plant introduced into this country by the Romans—and its name of Radish, is from the Latin name for root, “*radix*.” As it is only found wild, in cornfields, it was, most likely, introduced into this country, at some period. It is not

uncommon, so I hope you will be able to examine its curiously-jointed and beaked pod. Compare the pods of the plants in this Family—(in the order we have examined them) and observe how gradually they have become less complete in all their parts.

The Wall-flower pod, with distinct valves, and dissepiment;—down to the Radish: which has neither *valves* nor *dissepiment*. But all the flowers are so truly *cruciform*, that they can well be thus linked together; and each is so complete in itself—ever true to its own character, that it can ever form the “same link in the chain.”

MIGNONNETTE FAMILY.

The VII Order, contains but one Genus, and 3 Species; one of which is so similar to a species so generally cultivated—so universal a favourite in garden and pot, that few will see the wild mignonnette without readily guessing its name. *Réseda Lutea*, is its botanical name:—it is only to be met with on chalky hills, and waste places.

The common DYER'S ROCKET (*R. Luteola*) requires the same soil, and is very similar in appearance—but not sweet-scented; nor are the flowers so yellow as the first species, but it is the favourite flower with bees, as it has a large nectary, green on the upper side of the flower. It yields an “useful yellow dye for woollen stuffs.”

ROCK ROSE FAMILY.

The VIII Order, contains but one Genus, (5 Species) which bears so strong a resemblance to the Poppy Family, that I will point out the difference. It has a permanent Calyx of 5 Sepals, *twisted* before opening; and the seed-vessel has several Placentas.

The common Rock Rose (*Heleanthemum Vulgare*) is a lovely little yellow flower, with crumpled petals, and numerous stamens: with stems spreading on the ground, and numerous, narrow leaves, arranged on each side of them. If you press the stamens between your finger and thumb, they instantly expand.

IX ORDER. VIOLET FAMILY.

“ Here are ‘Jewels of Earth’ from the wild-wooded glade;
Oh! who doth not love them, dear gems of the shade
They are fair as the pearl, as the amethyst bright;
How rich is their darkness! how pure is their light!

The breeze swept this morn by their shaded retreat;
And loaded his wings with their delicate sweet;
He told, as he past me, with ecstasy swelling,
Of the spoil he had found in the Violet’s dwelling.”

“ *Le Bouquet des Souvenirs.*”—E. H.

The IX. Order contains but one genus also, but it is so interesting and beautiful a family, that we must examine it Botanically: and you will discover more wonderful formation and beauty, in the arrangement of the flowers, of two of our greatest favourites, than you have yet observed, though you have admired them so often.

[IX. ORDER. VIOLET FAMILY. (Violaceæ.)

Sepals 5, Petals 5, unequal (Pl. I. 4 h.) and the lower one spurred at the base, or sometimes equal. Stamens 5, Anthers generally with an appendage *at their extremity*: two of them usually, with an appendage *at their base*. Ovary one-celled,

with 3 walled placentas, (parietal) bearing several seeds. Style 1, Capsule one-celled, 3 valved, bearing the seeds along the middle of each valve, (Pl. II. 7 p.) Embryo straight about as long as the copious, fleshy albumen. Herbs or shrubs, with stipuled leaves, and powerful emetic roots.]

8. VIOLET OR PANSY. (*Viola*.)

Calyx of 5 sepals, extended at the base, Petals 5, unequal, the under one spurred behind. Name of Celtic origin, in modern Gaelic, 'fail,' signifies 'a smell,' and *failchuach*, 'a violet.'

SWEET VIOLET. *Viola odorata*.

Leaves heart-shaped, scalloped, and as well as their stalks, downy, or nearly smooth. Sepals pointed. The side petals usually, with a hairy line, Anther-spurs, lance-shaped, blunt, and curving downwards, (decurved.) Stigma, hooked (uncinate) convex above. Scions creeping, leaves and flowers grow from the crown of the root. Bracts, usually above the middle of the peduncle. Hairs on the leaf-stalks, short and turning down, rarely long and spreading.]

As in the hairy Violet, which may be distinguished from the sweet Violet, by every part (but the petals) being rough with hairs: and having *no scions*. The hue of Violets is sometimes lilac, or plum-colored, and oftener white, which some authors are of opinion, may be owing to the soil being chalky. The following re-

marks, are by the author of "Flora Historica," and so well point out the curious beauties of the flower, that they must be given in his own words: few will think the description too long. "The spur of the petals contains the nectar; and if it is carefully split open with a pointed knife, it will be seen that the two lower anthers have a tongue, or tube attached to them, which descends into the spur evidently to draw up the nectareous juice. As the Violet blossoms, in a season when there are but few plants in flower, nature seems to have taken a double precaution to secure the entrance against intrusion. The two side petals are furnished with a kind of beard, which keeps out the smallest insect, at the same time it admits air which appears to be necessary in the formation of the nectar. The stigma of the sweet Violet, when attached to the seed-vessel, is not unlike the Ostrich, in shape, but when the Corolla and Calyx are carefully removed, (leaving only the parts of fructification attached to the receptacle) *a most beautiful miniature bird* is represented! The stigma forms the head and beak, the anthers make a golden breast, whilst their tongues appear like a pair of green wings." And now, does not the sweet Violet appear, a still more beautiful and interesting flower than you thought it before you examined it thus carefully?

“Violets, sweet tenants of the shade,
In purple’s richest pride array’d,
Your errand here fulfil :
Go, bid the artist’s simple stain
Your lustre imitate, in vain,
And match your Maker’s skill.”—CLARE.

We shall find that the pretty Heartsease resembles the Violet in many of these curious particulars ; and some authors say that it has a portion of its sweet scent too. If you wish to find the flowers in their greatest beauty, when the upper petals are purple, or partially so, search the corn-fields for them, as early as April or the beginning of May. For very soon after the plants begin to flower, they only bear *yellow* flowers, and these become smaller and paler, as the summer advances, till at length, the petals are shorter than the Calyx, and not *spreading*, as in the early season. The Heartsease in its early bloom, is one of the prettiest flowers of rich tints and texture that we have.

“Can all your tapestries or your pictures show,
More beauties than in herbs and flowers grow.”

“The most brilliant purples of the artist, appear dull when compared to that of the Pansy. Our richest satins and velvets are coarse and unsightly by a com-

parison of texture; and as to delicacy of shading, it is scarcely surpassed by the bow of the Iris itself.”—
FLORA HISTORICA.

[PANSY-VIOLET OR HEARTSEASE. (*Viola tricolor*.)

Root annual or fusiform (pl. II. 15 fu) Stem angled, branched, Leaves oblong, deeply scalloped, (crenate.) Stipules lyrate, pinnatifid. Spur of the Corolla about as long as the produced base of the Calyx. Stigma large, capitate, obliquely perforated.]

TO THE PANSY.

“ And thou so rich in gentle names appealing,
To hearts that own our nature’s common lot,
Thou styled by sportive Fancy’s better feeling
“A thought,” “the *Heartsease*,” or “*Forget me not*.”
Who deck’st alike, the peasant’s garden plot,
And castle’s proud parterre;—with humble joy
Proclaim afresh, by castle and by cot,
Hopes, which ought not, like things of time to cloy,
And feelings, Time itself shall deepen,—not destroy!”

BERNARD BARTON.

SUN-DEW FAMILY.

“ ——— Botany—

To Nature's ever varying face
It gives, each day, a novel grace,
New wonders! and unfolds a store,
Of knowledge not perceived before.
To many a healthful walk abroad,
It tempts; and many a weary road,
Enlivens; cheering us along,
As blythly as the pilgrim's song!—
Reveals a garden in the waste
And shows a feast before us placed.”—BP. MANT.

The 10th Order contains but 4 plants, not common, but so peculiarly formed, and beautiful; and so well known by name; that I will give you a description, which will enable you to recognize them, and lead you to examine them with an eye prepared to discover all that is curious, and interesting in their formation.

THE ROUND-LEAVED SUNDEW.

“ By the lone fountain's sacred bed,
Where human footsteps rarely tread,

'Mid the wild moor or silent glen,
The Sundew blooms, unseen by men,
Spreads there her leaf of rosy hue,
Glitt'ring as if with morning dew."

The leaves of the plant (*Drosera Rotundifolia*) are its chief beauty; and yet, the slender red scape, (4 or five inches in height,) rising from the centre of the leaves, with many delicate small white flowers growing down one side of it, adds greatly to the beauty of its whole appearance. The leaves (pl. II. 14. g) are nearly round, of a delicate green, covered with bright crimson hair-like glands. These glands emit a clear, sticky fluid, which appears like drops of dew upon the plant: sparkling in the sun, and increased by the heat, instead of evaporating, as dew ever does. "It appears to be useful to the plant, by entangling any small insect on the leaf, either accidentally, or perhaps, mistaking the glittering drops, for some delicious food. Once caught, its destruction is inevitable;—of what use the dead fly is to the plant, is not known." Perhaps these glittering "Fly-traps" (as these plants are likewise called), are to teach us this lesson,—that what appears "delicious," and beautiful to the sight, may prove to be poison, or do us some deadly harm!

But oh! approach it not, poor thoughtless fly,—
Touch but that sparkling trap,—and thou must die!

THE GRASS OF PARNASSUS.

. “A little flower, milk white,
Which sportive fancy often fondly thinks,
May once have sprung beneath the Muse’s feet,
And heard Apollo’s Lyre.”

THE GRASS OF PARNASSUS (*Parnassia palustris*,) bears no resemblance to grass, but has a delicate white flower, veined with green, about the size of a buttercup. It has 5 petals, and 5 stamens, with 5 beautiful nectaries, alternate. These nectaries are fringed with white silken hairs, each tipped with a tiny golden ball. These balls are *glands*, filled with a clear fluid: examine the flower with your lens—for every part is very beautiful. The stems are 6 or 10 inches high—with heart-shaped leaves, on long footstalks, one (which may be called a bractea) clasps the stem. This plant only grows in bogs and wet places; and is more frequent in the north. Its name tells us that it sometimes takes an elevated station; but the plant is by no means peculiar to “Mount Parnassus.” The stamens rising forward, to shed their pollen on the stigma, is thus described by Bishop Mant:—

“Parnassian grass, with chalice bloom,
And globes nectarious, like the Earl’s
Rich coronet, beset with pearls;
Whose stamens form’d with wondrous power,
To fructify the expanded flower,
Each after each, their anthers bend,
And on the germen’s open head,
The fertilizing pollen shed,
And thence withdrawing backward trace,
Their passage to their former place.”

MILKWORT.

The XI Order contains but one plant; the pretty MILKWORT (*Polygala Vulgaris*) stands alone. It resembles the Fumatory Family, in some respects—but its seed-vessel separates it from that, and from the Butterfly family also. The flowers are blue (but as often white, and lilac, on a chalky soil) stems branched, half reclining; from 4 to 8 inches high, with small oval leaves down each side of them. The flowers, (which grow down the stem, about half way) have a coloured calyx of 5 sepals, the two inner, wing-shaped. Petals, from three to five, combined by their claws, with the filaments, which are in two bundles, the lower petal is keeled, and beautifully crested.

This plant ever brings to mind, one lovely summer's day, in early childhood, when in one of our distant rambles we first discovered, a beautiful patch of the Milkwort; and in all its colours. The joy of such a discovery, has since been recorded in verse, by the dear companion of many an early ramble. May such enjoyment, in the discovery of a new flower, be in store for you.

TO THE MILKWORT.

Oh! full of childhood's memories,
Sacred and sweet,
Year after year, with eager eyes,
Thee still I greet!
I love thee, for thou hast the power,
To bring me back that joyous hour,
When first I mark'd thy simple flower
Bloom at my feet,
And thou couldst thrill my heart with unknown pleasure—
Another flower—a new one? oh! what treasure.
I know not when, I know not where
The prize I found;
But well I can recall the air
That breathed around.
The breezy down, the fragrant thyme,
The clear, soft sky of summer's prime;
Thou bring'st them back like some faint chime
Of far off sound!
On the still ear through din and tumult stealing,
And to the listening heart sweet melodies revealing.

ANNA J. VIDAL.

XIV. ORDER. CATCHFLY FAMILY.

Now, by these cooling shades,
The beauty of these plants
By these delightful meadows,
These variegated flowers,
By the soft music of the rills and birds,
Let us sit down in joy!—MILTON.

I pass over the two next Orders, (which contain but 3 plants, and little known) to one of a distinct, and very different character, from those we have examined yet. And of a different hue also, pink being the prevailing colour of this family; and “THE PINK” is its most favoured flower.

[XIV. ORDER. CATCHFLY FAMILY. (*Caryophyllaceæ*,)
which signifies, Corollas, with long claws to the petals.
Pl. II. 2 p. cl.

Sepals 5 or 4 persistent, distinct or united. Petals as many, rarely wanting. Stamens as many as, or double the number of the petals, inserted upon a fleshy, elevated disk, supporting the Ovary—or a ring. Anthers opening lengthways. Ovary 1. Styles 2 to 5. Capsule 1-celled; (sometimes so at the summit, and 2—5 celled below). 2—5 valved, or opening at the summit with teeth. Placenta central, and free in the 1-celled capsules; in the rest attached to the centre

(axile). Seeds generally numerous. Herbs more or less swollen at the joints of the stem ; with opposite leaves, without stipules.

I. SUB-ORDER, (Sileneæ). Sepals united. (Monophyllus Calyx). Petals and Stamens hypogynous, inserted on the summit of a stalk to the Ovary.

5. GENERA.

5. PINK.

10. CATCHFLY.

1. COCKLE.

1. SOAPWORT.

5. CAMPION.

PINK.

Dianthus.

Calyx tubular, (pl. II. 1 t) 5 toothed, with about four opposite scales or bracteoles, at the base, which overlap (imbricated). Petals 5 clawed. Stamens 10. Styles 2. Capsules cylindrical. 1-celled. Seeds peltate. Name signifies 'Jupiter,' and 'a flower,' dedicated, as it were, to Deity itself, to express the high value set upon this charming genus of flowers.]

None of the wild Pinks are common ; but the single Pinks of the garden are so true to the character, that when you do meet with any of the wild species, you will readily recognize them, after you have examined some of the garden Pinks. I will give you the description of the most beautiful of the Genus,—the Clove Pink or Carnation which is the origin of all the beautiful double Carnations and Pinks of our gardens.

[CLOVE PINK. *Dianthus Caryophyllus*.]

Stem branched, flowers mostly solitary. Scales of the Calyx egg-shaped, broadest end at the top (*ob*-ovate), rather bluntly pointed, (sub-mucronate), much shorter than the tube. Petals broad, with angular notches, (dentato-crenate), leaves long and narrow; awl-shaped, grooved, of a blue-green, smooth on the margin.]

This is the "curious choice Clove, *Gilliflower*;" as many of the poets of early days styled it. The name is a corruption of *July*-flower, from that month being the time for its flowering. Spencer, the poet, calls them Coronations, from which the name 'Carnation,' has arisen, no doubt. As it is never found but on old walls, we may suppose that, like the Wall-flower, it was first introduced into our gardens, from other countries. But many authors are of opinion that it originally grew wild on our rocks and cliffs; as another species, the CHEDDAR PINK, (*Dianthus cœsius*), with pale lilac flowers, of the same size; grows wild on the limestone rocks of Cheddar. The flower of the Carnation is as large as the Indian Pink of the garden; varying in color, from the palest pink (finely dotted) to a rich crimson; and very beautiful they

appear on the old walls, when the plants are in full blossom.

“ Let your admired Carnation own,
Not all was meant for raiment or for food,
Not all, for useful need alone ;
There, while the seeds of future blossoms dwell,
'Tis color'd for the sight, perfum'd to please the smell.”—

SHENSTONE.

We will examine one Species in this large Genus, and all are so similar in their appearance, that you will readily distinguish them ; observing that they differ from the next Genus (which most nearly resembles them) in the number of styles, and cells of the capsules.

[CATCHFLY. (Silène).

Calyx of one piece, (monophyllus), tubular, often swelling unequally on one side, (ventricose). 5-toothed. Petals 5-clawed, mostly crowned at the mouth ; and the limb generally notched or bifid. Stamens 10, alternate ones, opposite to the petals, and adhering to the claws. Styles 3, Capsules 3-celled, to the middle, or only at the base, (rarely 1-celled), 6-toothed, many-seeded. Name supposed to arise from the word ‘saliva,’ in allusion to the sticky moisture on the stalks of many species ; whence too, the English name of Catchfly.

BLADDER CATCHFLY. (Silène inflata.)

Flowers numerous, panicked, (pl. II. 12. P.) Petals deeply cut in the middle, (cloven) with narrow claws, scarcely crowned. Calyx inflated, reticulated, stem erect, leaves lance-shaped, the lower part much broader (ovato-lanceolate). Stem and leaves smooth or downy petals pure white. Stem 1 or 2 feet high.]

This Catchfly is very common in corn-fields, by roadsides, and waste-places: the Petals are white, small, compared with the Calyx, which is a miniature balloon, and so completely air-tight, before the flower appears, that if you press it suddenly against the back of your hand, it will burst with a report as loud as that of a small pea-pod.

The 'SEA CAMPION,' (OR CATCHFLY), is a much handsomer flower, milk-white, with smaller stems and leaves.

THE NIGHT FLOWERING CATCHFLY (S. Noctiflora) is sweet-scented, with pale reddish, almost white flowers. It is to be found in corn-fields, in a gravelly or sandy soil. These are flowers

“ That keep
Their odour to themselves all day,
But when the Sunlight dies away,
Let the delicious secret out,
To every breeze that blows about.”—T. MOORE.

We now come to a Genus, very nearly allied. I will give you the Botanical description, and then, you will never be puzzled with them; though some have named Catchflies—Campions. Like the Catchflies, nearly all the flowers are white.

[CAMPION-LYCHNIS.

Lychnis.

Calyx Monophyllous, tubular, 5-toothed. Petals 5-clawed, crowned at the mouth, mostly divided at the border. Stamens 10. Styles usually 5. Capsules opening by 5 or 10 teeth, (Pl. I. 4 k.) Named from the Greek, which signifies 'a Lamp,' the thick, cottony substance on the leaves of some foreign species, having been used as wicks to Lamps.

WHITE CAMPION.

Lychnis vespertina.

Flowers, often with only stamens, or only pistils. (sub-dioecious.) Calyx of the *pistil*-bearing (pistilliferous) flowers, with long, narrow teeth; Capsule conical, with teeth erect. Ovary 1-celled. Calyx of the anther-bearing flowers, nearly *cylindrical*: of the pistil-bearing flowers, egg-shaped. Stem 1—2 feet high. Flowers pure white, on stalks unequally placed, (panicle) downy; slightly sticky about the joints. Leaves egg-shaped or broadly lanceolate. Sweet-scented in the evening. Common in fields and hedges from June to the end of August. Pl. II. 8. o.]

THE RED CAMPION (*L. diurna*) is very similar, with deep, Rose-color Petals.

The prettiest flower in this Genus, and the pride of the meadow, in its richest season of gay blooms, is, the "MEADOW PINK," (*Lychnis Flos-cuculi*) with its rose-colored Petals, deeply fringed, hanging gracefully over its delicate Calyx, and Stalk, which are shaded with red. The Stem is 1—2 feet high, and sticky above. If you wish to procure specimens, search for it (in *watery* meadows) as soon as it begins to flower ; one day's delay may be too late ; for it blossoms just as the grass is ready for the scythe ; and what looks so fresh and gay *to-day*, is, *to-morrow* "cut down, dried up, and withered away."

"Farewell, the meadows, where such various showers,
Of beauty lurk'd amongst the fragrant hay ;
Where Orchis bloom'd with freak'd and spotted flowers !
And *Lychnis* blooming like the new-born day."—

Mrs^s C. SMITH.

The beautiful CORNCOCKLE, (whose name *Agrostemma Githago* signifies "Crown of the field,") has large flowers, of a rich lilac ; and stands two feet high, with woolly, leathery leaves and stalk, difficult to break except at the joints. The Plant is so different from any other, and so true to the character of this Order, that you will readily know its name when you find it.

II. SUB-ORDER. (Alsineæ.)

Sepals distinct, or nearly so. Petals and Stamens, inserted on an hypogynous, or perigynous (*on* the Calyx) ring. Capsule sessile, 1-celled.

10. GENERA.

- | | |
|------------------|---------------------------------|
| 7. Pearlwort. | 1. Mouse-ear Chickweed (water.) |
| 1. Buffonia. | 6. Stitchwort. |
| 1. Cyphel. | 1. Jagged Chickweed. |
| 1. Sea-purslane. | 1. Mœnchia. |
| 9. Sandwort. | 8. Mouse-ear Chickweed. |

The PEARL-WORTS (*Sagina*) are to be readily distinguished as belonging to this Order, but too small to examine, to discover their species. Their small white buds, in the Calyx, are like Pearls amongst Emeralds: and have doubtless given the plant the name it bears. One small species (*S. procumbens*) often disfigures our garden walks: not but that the plant is beautiful in itself, but the walk should not be thus decorated; and therefore is disfigured by it. Even as the most beautiful gems, and rich attire, are a disfigurement to those to whom they are unsuitable.

The SANDWORTS (*Arenaria*) are small plants also, with white or lilac flowers. One with white flowers, called the 3-nerved Sandwort (*A. trinervis*) is frequent in moist, shady hedges: 6 or 8 inches high, with egg-shaped, and pointed leaves, and three conspicuous veins in each. Another Sandwort with *Thyme*-shaped leaves, is common on walls. You will be puzzled to distinguish them from the Pearlworts. The Sandworts have 3—4 Styles; and 3—5 Valves in the Capsules. The Pearlworts have 4—5 Styles; and 4—5 Valves in the Capsules. The Petals of the Sandworts are more conspicuous, and more deeply divided down the middle, than the Pearlworts.

We will now examine one of the Stitchworts, whose pure, white, star-like blossoms are well known to us, as a favorite hedge-flower.

[STITCHWORT.

Stellaria.

Sepals 5. Petals 5, deeply cloven. Stamens 10. Styles 3. Capsules opening with 6 valves. Many seeded. Named from *Stella*, a Star, because the Corolla spreads in a star-shaped manner.

GREATER STITCHWORT. (*Stellaria holóstea.*)

Stem nearly erect, with 4 rough, sharp angles, leaves lanceolate, very pointed, sessile. Petals cloven to the middle, twice as long as the *nerveless* Calyx.

This plant is from 1 to $1\frac{1}{3}$ feet high, rather rigid, and brittle. The flowers are the largest in this genus, on stalks, few in a panicle, with leafy bractæas.]

Common, but ever welcome in our hedges. Its beauties are best pointed out in the following lines.

“ Fair Star of the Spring, thou art blooming as brightly,
Beneath the low hedge, by the dusty way-side,
As if the soft breezes were waving thee lightly,
In green, dewy glades, where the Violets hide.

’Mid the loud din of traffic so tranquilly smiling,
Neglected, and scorned, yet all beautiful still,
Not a stain, not a spot, thy white vesture defiling,
Thou art pure as the storm-drifted snow of the hill.

Some spell in thy bosom, must surely be hiding,
To keep thee untouched from pollution around ;
Some spell, in thine innermost depth close abiding,
By the rude world without thee, just felt and not found.

Blest they, who tho’ life’s crowded paths be their dwelling,
Like thee, the fell contact unstained can endure,
And tho’ the dark dust-clouds around them are swelling,
Still keep their white raiment unsullied and pure.

And they have a spell, which man’s eye passes over,
So deeply, it dwells the dark spirit within,—
A spell, the world’s wisdom can never dissever,
Which keeps them at peace, ’mid its angriest din.

'Tis a spell, whose high magic all nature confesses,
With wonder or envy, but none may define,
Save he, who the talisman's treasure possesses,—
Oh Christian, this hallow'd enchantment is thine.”—

(MS.) ANNA J. VIDAL.

I must now give a description of the smallest plant in this genus ; and, as written by one, who in all her delightful works on Natural History, discovers so much beauty even in the structure of the minutest objects, and ever leads us to turn, with a grateful heart to join in singing the praises of their Creator.

CHICKWEED. “ *Stellaria media*.”

“ Each of its polished stems upholds a bud in different stages of verdure, or of decay. In some, the starry, white Corollas, are fully exposed to the sun : in others, which also stand upright, the white Petals have fallen off, and the four-sided, and light green capsules, appear conspicuous ; in others again, the stalk assumes a curved form, and the capsule bends towards the earth. Look at it when thus reversed, what a curious shape ! what a wonderful arrangement ! Growing frequently on places exposed to fierce winds, and heavy showers, a peculiar provision is required for the protection of the seed. Observe

therefore, a small penthouse formed by the Calyx, for the Calyx in this plant is permanent: it may not wither, and fall off, like that of the Poppy, which does not require its assistance. Thus protected, the seed-vessel continues reversed during a few days; at the end of which time, the stem straightens, and uplifts the seed-vessel to the influence of the sun. Here then another process is discoverable: the Capsule splits into six small divisions at the top; through which both air and light are freely admitted to the enclosed seeds. When their active ministry is finished, and the seeds are fully ripe, the stem bends again, and empties, as from an urn, the innumerable seeds upon the earth. Thus, does every stem change its position, at least four times, to suit the different stages of growth or of decay.

This little plant, is another of Flora's Watches. And here also, the spiral wires come into aid. By means of them, the starry, white corolla opens early in the morning, and closes about four in the afternoon. These spiral fibres, are extremely susceptible of any atmospheric changes also,—the flowers shut up closely before a coming storm. . . . What sees the stranger in passing by this little plant? A small and insignificant looking weed, covering the top of an old wall,

or springing from interstices where the mortar has fallen out between the stones. What sees the Botanist in the simple weed? An object of great interest; formed especially for the place it is designed to fill: a memento of the care of its Creator, and not of the plant only, but of numerous winged creatures that depend upon the ripening of its seeds for their support."

"Look on that Chickweed, mourner, and list the grateful strain,
Of her, who sings to praise Him, 'mid driving wind and rain.
That warbling creature hath not, nor fields, nor hoarded corn,
And yet, she sweetly singeth, the leafy boughs among.
Her soft clear voice is telling, from out the lovely tree,
That He who feeds the lone one, doth surely care for thee.
Her plumes are rudely ruffled, the day is nearly gone,
But she heeds not, she fears not, and still she singeth on.
Oh! weep not thus, poor mourner, the storm shall pass away;
For me, sweet Spring is coming,—for thee, a brighter day."—

"Flowers of the Matin and Even-song."

by MARY ROBERTS.

"The MOUSE-EAR CHICKWEEDS" (*Cerastium*) have small white flowers also, and of just the same form as the Stitchworts. The difference is, that the Mouse-ear Chickweeds have 5 Styles, and the Capsules open with 10 equal teeth. The leaves are thicker and coarser-looking. Three or four species are common

in corn-fields, by road-sides, and on wall-tops. We will not puzzle ourselves by trying to separate the species at present: but now conclude this interesting Order of Pink or White Flowers, so easily distinguished (as a family) by their *opposite, undivided leaves, on jointed stems, without stipules.*

“Farewell the meadows, where such various showers,
Of beauty lurk'd amongst the fragrant hay,
Where Campion bloom'd with purest milk-white flowers,
And Meadow-pink still blushing like the new-born day.”

FLAX FAMILY.

“ Oh ! the little Flax-flower,
It groweth on the hill,
And be the breeze awake or 'sleep,
It never standeth still.

It groweth, and it groweth fast,
One day, it is a seed,
And then, a little grassy blade,
Scarce bigger than a weed.

But then, comes out the Flax-flower,
As blue as is the sky,
And 'tis a dainty little thing,—
We say, as we pass by.

Ah ! 'tis a goodly little thing,
It groweth for the poor,
And many a peasant blesses it,
Beside his cottage door.”—MARY HOWITT.

THE XV. ORDER (LINACEÆ) contains only, the beautiful Flax-plants, (4: *Linum*.) and the FLAX-SEED, (*Radiola*), none of which are common, except the small White Flax. If you do not know the Blue Flax (of which linen is made) sow some linseed in your garden, and as you watch its growth, think of the

immense value of both plant and seed to us ! The woody-fibre of its stem, is spun into thread, of which linen, damask, cambric, lace, &c. are made in endless quantity and variety of quality. The seed produces a valuable oil, and being mucilaginous, is much used for fomentations, &c., for the sick and suffering. Who can look on this slender little plant, but with grateful admiration !

There are two other species with blue flowers, very similar : as they are not common, I will advise you to learn the character of the useful one, by growing the *Linseed* (as its seed is called) in your garden, or a pot.

The WHITE FLAX (*L. Catharticum*) which is to be found on heaths, and in meadows, is from 2—6 inches high only : with opposite oblong leaves on forked stems ; flowers of 4 or 5 petals, drooping gracefully, before opening.

XVI. ORDER. THE MALLOW FAMILY.

“ There is a lesson in each flower,
A story, in each stream and bower,
On ev'ry herb on which you tread,
Are written words, which rightly read,
Will lead you from earth's fragrant sod,
To Hope, to Holiness, and God.”—CUNNINGHAM.

HERE is another well-distinguished Order, and a pleasant task it will be to examine its large, and beautiful flowers, and curious button-shaped seeds. (Pl. II. 7. m.)

“ Picking from Mallows,—sport to please,—
The crumpled seed, we *call a cheese*.”

[THE MALLOW FAMILY. (Malvaceæ.)

Calyx, 5 cleft, united by their margins only, before the flowers open, (valvate in æstivation). Corolla, of 5 Petals,

regular, twisted when in bud. Stamens indefinite; united. (Monodelphous. pl. I. and II. 2 m.) often united with the Petals at their bases. Anthers kidney-shaped, 1-celled. Ovary 1. Styles single, or several combined. Stigmas several. Fruit, a Capsule, with many cells and valves, or composed of many carpels, collected into a compact body, or placed in a whorl, round the base of the style. Embryo curved; with twisted, and double Cotyledons. Herbs, or Shrubs, or *Trees*. Leaves alternate, with stipules. Flowers on stalks, several together on the stem, at distances. They abound in mucilage, especially the seeds. The stems and root form an excellent fibre.

Though there are but few British Species of this Family; there are numerous exotics which belong to it. One, of the trees, as useful to us as the Flax, is, "The Cotton Tree," whose fine white fibre, contained in the seed-vessel, is spun into such an innumerable variety of cotton goods. That fine white fibre is of the cellular tissue of the plant; we can now understand why cotton goods are not so durable as linen, which is made of the *woody* fibre (vascular tissue) of the plant.]

3 GENERA.

1. Tree Mallow. 4. Mallow. 3. Marsh Mallow.

[MALLOW. (Málva.)

Calyx, with a 3-leaved Involucre, (Pl. II. m I.) Carpels numerous, circularly arranged, 1-seeded. Name altered from a Greek word signifying "soft," in allusion to the emollient nature of the species.

COMMON MALLOW. *Malva Sylvestris.*

Stem erect, herbaceous, leaves with 5 to 7 rather acute, deep lobes; peduncles, and petioles hairy, fruit smooth, wrinkled, like net-work (reticulately wrinkled). Stem, from 2 to 3 feet high. Petals heart-shaped, reversed, (obcordato) large, and of a deep lilac, with darker veins. Flowers 3 or 4 together, on the stem, at distances, with the leaves. (not only terminal.) Whole plant, especially the fruit, slimy (mucilaginous) and emollient.]

This plant is so common and conspicuous, that doubtless you know it; and perhaps call its fruit cheeses; for that is the name it often bears. The MUSK MALLOW (*Malva Moschata*) is not so common, but a more elegant plant; with rose-color petals, and finely cut leaves, which have a faint, musky smell in the evening. There is one other common species: The ROUND-LEAVED MALLOW, with small pale lilac blossoms, but the plant and leaves are large and tough, like the Common Mallow. The *Musk* Mallow is the 'Emblem of Meekness.'

" Yet only in the shade of night,
It sends its fragrance forth,
As though it deemed, no earthly light
Were conscious of its worth :
So it bends its head low as it wafts it away,
Ere the star of the morn tells the breaking of day.

There's nought beneath the vault of heaven,
That we may useless deem ;
E'en to this plant a moral's given,
Though simple it may seem.
' Emblem of Meekness,'—oh ! who doth not hallow,
The bright green leaf of the Musk-scented Mallow !"—

E. I., *Le Bouquet des Souvenirs*.

THE TREE-MALLOW (*Lavatera Arborea*) is a handsome plant, from 3 to 5 feet high, with purple-rose-coloured flowers, shining, and darker at the base of the petals. Leaves downy and plaited. This plant is only to be found on insulated, maritime rocks, in the south and west of England.

The COMMON MARSH MALLOW is remarkable for the thick, exquisitely soft, and starry down, of the leaves and stem. It grows on Marshes near the Sea, to the height of 2 or 3 feet. The flowers are large, of a pale pink lilac. It affords a valuable tea for coughs, and is often made into lozenges.

The HAIRY MARSH MALLOW, is very rare.

THE LIME FAMILY.

There's perfume on every wind,—
Music in every tree—
Dews for the moisture-loving flower,
Sweets for the sucking bee.”—N. P. WILLIS.

THE XVII. Order, contains but three plants—the magnificent and far-famed Lime-trees ! One of the first trees to rejoice us in Spring, with its light green foliage; and to regale us in July with its numerous sweet-scented blossoms, is the LINDEN-TREE (*Tilia Europæa*). The scent is ever accompanied with the sound of the hum of bees, which fly to it in great numbers, preferring the nectar of the Lime, to that of almost any plant; and honey made of it is much esteemed. The flowers have no *nectaries*, but are most carefully protected from rain or sun, by the broad, and somewhat dome-shaped leaves, beneath which the flowers are suspended. Their colour is of a greenish-yellow. Calyx and Petals 5, on stalks, springing from a large, lance-shaped bractææ, which falls off with the fruit and stalks. And as they fall

but slowly, with the large bractæ attached, the weight of the fruit keeps it in a position above, which causes it to spin in the air, like a shuttlecock, as it falls. The name *Tilia*, is of obscure origin,—perhaps from the Celtic ; in modern *Gælic*, the Lime is called *Teile*. But its *Swedish* name of *Lind*, agrees with our name of *Linden* or *Lime-tree*. There is one circumstance connected with the *Lime-tree*, which should alone render it a tree of peculiar interest to a Botanist. *Linnaeus*, the great *Swedish* Botanist, is said to have derived his own name, from its *Swedish* name of *Lind*. The *Bast* matting, so useful to the gardener, is the inner bark of the *Lime-tree* ; being exceedingly strong.

XVIII. ORDER. ST. JOHN'S WORT FAMILY.

“Hypericum was there, the herb of war,
Pierced through with wounds, and mark'd
With many a scar.”

THIS well-distinguished Family of Yellow Flowers, with numerous stamens, (and in three distinct parcels,) well deserves to be carefully studied; and we shall meet with many species very frequently, either in hedge, wood, or shrubbery.

[XVIII. ORDER. ST. JOHN'S WORT FAMILY.

(Hypericaceæ.)

Sepals 4—5, distinct or attached, lasting, frequently with glandular dots. Petals 4—5, with a twisted æstivation, and often with black dots. Stamens numerous, (15 or more) in three parcels, (polyadelphous) rarely in one parcel, or quite distinct. Anthers small, suspended (versatile). Ovary single. Styles, 3—5, rarely combined. Stigma simple. Fruit, a capsule of several valves, rarely a berry (bacca) several celled, (or imperfectly from the valves being curved inwards).

Seeds minute, numerous: on a receptacle in the centre (axis) or on the incurved margins of the valves. Generally opposite leaves, marked with pellucid dots, and having yellow flowers. Aromatic and resinous.

I. GENUS. 12. ST. JOHN'S WORT. (*Hypericum*.)

Calyx divided into 5, or of 5 sepals. Petals 5. Filaments united at the base, into 3 or 5 sets, or sometimes almost distinct; capsules many-seeded.

PERFORATED ST. JOHN'S WORT. (*H. perforatum*.)

Stem two-edged. Leaves oblong, obtuse, with pellucid dots. Sepals erect, lanceolate, acute, or toothed, leaves sometimes broadly oblong,—or narrow. There are *minute* black dots on the Calyx, Corolla, and often on the leaves, which distinguish it from the next species.]

“IMPERFORATE ST. JOHN'S WORT,” (*H. dubium*), whose other distinguishing mark is that “the leaves are reticulated beneath, with pellucid veins, and sepals reflexed.” Both species have branched stems, 1—2 feet high, and numerous yellow flowers in heads. (corymb).

“*Hypericum*, all bloom, so thick a swarm,
Of flowers like flies, clothing its slender rods,
That scarce a leaf appears.”

And blooming all the summer long; abundant in hedges, thickets, and woods. The following species are not uncommon, but bloom later.

‘The SQUARE-STALKED ST. JOHN’S WORT, (*H. quadrángulum*), with square stalks, pale flowers, *and with small black dots.*’

The HAIRY ST. JOHN’S WORT, (*H. hirsutum*), has a round, and hairy stalk, with glandular serratures to sepals.

TRAILING ST. JOHN’S WORT. Stems 6—8 inches long, on the ground. Corolla with black dots.

THE LARGE-FLOWERED St. John’s Wort, is not common wild, but often to be found in shrubberies, and easily to be distinguished as a *Hypericum*.

THE TUTSAN, (*H. Androsæmum*), is admitted as a *Hypericum* now, although its *fruit* is a berry (*bacca*). This is a handsome, shrubby plant,—often cultivated also. Its leaves are large, in pairs, and of a brilliant green, often shaded with red. The berries are first red, then black. It grows in damp, shady woods; not common. The most beautiful of the order, is the *Small UPRIGHT ST. JOHN’S WORT*, (*H. púlchrum*). We will read its full description: “Sepals, broadly ovate, obtuse, with black, glandular serratures. Stem erect, smooth; leaves heart-shaped, clasping the stem,

smooth, and 1—2 feet high. Its bright yellow flowers (in loose panicles) tinged with red, before opening, with red Anthers, and frequently red stems, and leaves partly so ;—make it a very ornamental plant ; and though its favorite station, may probably be in the midst of pricking Furze or brambles, (on heaths, or in hedges), you will be willing to risk many scratches to procure some. The flowers only open when the sun shines on them ; but they will bloom in water, if placed in the sun, fresh buds opening daily, for many days afterwards. Its name, of St. John's Wort, is given because it is in full flower at the time of the feast of St. John, Midsummer.

“ If thou wilt seek the air that breathes,
Upon the open upland heaths,—
The small St. John's Wort's bud and bloom,
Though gifted not with sweet perfume,
Will glad thy eye with many a gem,
That decks its little upright stem.
Its polished, heart-shaped leaves, with grace
Fondly, the upright stem embrace ;—
So may thy heart with fondness cling,
To uprightness, in everything.
Its crimsoned buds, its golden flowers,
Mock the most skilful artist's powers :
No eastern prince did e'er possess
Such beauty in his costliest dress.

Though art with nature may contest,
 Yet is the hand of God confest,
 In humblest bloom that paints the heath,
 Or lurks the woodland shades beneath.
 If Beauty, then, can charm thy heart,
 And high, and holy thoughts impart,—
 'Tis not in vain that heath and bower,
 Display the small St. John's Wort Flower."—

W. GARDINER,

*Author of "The Flora of Forfarshire;" "Twenty
 Lessons on Mosses," &c.*

MAPLE FAMILY.

Two well-known trees, form the XIX. Order.—The Sycamore (*Acer Pseudo-platanus*), and Maple (*A. Campestre*); and these, and the Lime, are the only trees in this Sub-class: nearly all our trees bear Catkins of very incomplete flowers, and belong to the 4th Sub-class. The MAPLE and SYCAMORE have greenish-yellow flowers, Calyx divided into 4—5 or 9. Petals the same. The flowers hang in bunches beneath the large leaves of the Sycamore; and the fruits of both, have wings to them (a double samara, pl. II. 7 S) which greatly aid in dispersing them, as a high wind will carry these winged seeds to a considerable distance. The wood of the Sycamore is very white and hard; and is much used for bowls and trenchers, as it was formerly used for spears and spikes. The Maple is often beautifully veined, when it is much prized for ornamental wood-work.

XX. ORDER. CRANE'S-BILL FAMILY.

“ There is a spell in every flower,
A sweetness in each spray,
And every simple bird has power
To please me with its lay.

Oh ! there is joy and happiness
In everything I see,
Which bids my soul rise up and bless,
The God that blesses me.”—ANON.

This is a very pretty, and well-distinguished Order ;
(by the form of the seed-vessel, and united filaments.)
The flowers are of every shade of Lilac, to crimson ;
and so near to blue, as to give the largest species the
name of BLUE MEADOW CRANE'S-BILL. This is
common in gardens, with a white variety also :—and
these will be the best for you to examine, whilst read-
ing the description of the Order.

CRANE'S-BILL FAMILY. (Geraniaceæ).

Sepals 5, with an imbricated bud, (Pl. II. 10.) Pe-
tals 5, with a claw. Stamens generally united

(monodelphous) and twice as many as there are petals. Ovary 5-lobed, terminated by a long, thick beak, and 5 stigmas. Carpels 5, 1-celled, separating, when ripe, from the base of the beak,—together with their long, elastic awn, (the style, pl. II. 7 A. s). Seed solitary, without albumen. Embryo curved. Cotyledons folded one in the other, (convolute) and plaited. Herbs or shrubs, with leaves opposite, at the joints, or alternate, and then opposite the flower-stalks. No tendrils.

2 GENERA.

13. Crane's-bill.

3. Stork's-bill.

CRANE'S-BILL.

Geranium.

Petals regular. Stamens 10, slightly monodelphous, 5 outer ones opposite the petals, the other 5 alternating: larger, with a gland at their base. Capsules each with a long, smooth awn. Name signifies "a Crane:" the fruit resembling the beak of that bird.

[HERB-ROBERT.

G. Robertianum.

Peduncles 2-flowered.

Leaves 2, with 3 or 5 deep, lanceolate divisions, (segments cut deeply and pointed. Calyx angular, hairy; claw of the petals smooth. Capsules wrinkled across. Seeds without dots. Stems red, spreading, brittle.]

Flowers crimson, sometimes white, which, with the red stamens, are very pretty and delicate in appearance. This plant is a great ornament to our hedges in early summer, with its numerous flowers, first crimson, then soon fading to a pink-lilac. In early spring and autumn, its bright red leaves—or partially red, shaded to green—attract our admiration also.

THE DOVE'S-FOOT CRANE'S-BILL (*G. Mólle*) is common: small pink-lilac flowers, and very downy leaves. Search for the plant in arable fields, in early April, when it has sent forth its first stalks and leaves, and you will see the stems, of a rosy-pink, spread on the ground, in the form and *color* of a Dove's-foot.

THE MOUNTAIN (*G. Pyrenaicum*) is not common, but frequent. A larger plant than the Dove's-foot, with lilac flowers.

THE JAGGED-LEAVED C. (*G. dissectum*) is common. Small flowers, and larger leaves than the above, and very much divided and notched.

THE LONG-STALKED CRANE'S-BILL (*G. Columbinum*) is a very elegant plant, with larger lilac flowers than the two common species on slender stems, (often red) in pairs. Its leaves are divided into 5, and deeply cut: and the carpels, when ripe, start from the centre, being still united by their awns at the top: forming a beautiful fairy chandelier.

The STORK'S-BILLS (*Erodium*) are not common—the smallest (hemlock S.) is the most frequent. The distinguishing character between these and the Crane's bill, is in the seed-vessels, which have long *spiral* awns, *bearded* on the inside. Its name is from the fruit resembling the head of the *Heron*.

I must conclude with some very pretty lines by Wordsworth, on our favourite flower Herb Robert; sometimes called

Poor Robin.

Poor Robin is yet flowerless, but how gay,
 With his red stalks, upon this sunny day!
 And as his tufts of leaves he spreads, content
 With a hard bed, and scanty nourishment,
 Mixt with the green, some shine, not lacking power,
 To rival summer's brightest scarlet flower.
 And flowers they well might seem to passers by,
 If look'd on only with a careless eye;
 Flowers—or a richer produce (and it suit,
 The season)—sprinklings of ripe Strawberry fruit.

* * * *

Or does it suit our humour to commend
 Poor Robin, as a sure and crafty friend,
 Whose practice teaches, spite of names, to show
 Bright colours, whether they deceive or no?
 Nay, we would simply praise the free good will,
 With which, though slighted, he on naked hill
 Or in warm valley seeks his part to fill;

Cheerful alike, if bare of flowers, as now,
Or when his tiny gems shall deck his brow ;
Yet more, we wish that men by men despised,
And such as lift their foreheads overprized,
Should sometimes think, whene'er they chance to spy
This child of Nature's own humility,
What recompense is kept in store or left
For all that seem neglected or bereft ;
With what nice care equivalents are given,
How just—how beautiful—the Hand of Heaven.

BALSAM FAMILY.

He who through Nature's various walks surveys,
The good and fair, her faultless line pourtrays,
May range, at will, bright fancy's golden clime,
Or musing, mount where science sits sublime,
Or wake the spirit of departed time.

PLEASURE OF MEMORY.

The only plant in the XXI Order, is the BALSAM, or TOUCH-ME-NOT (*Impatiens Noli-me-tangere*). This name is given to it, on account of the curious property of the seed-vessel. It has 5 elastic valves, which, if you touch them, burst open, and scatter their seeds, to a great distance. The valves then become twisted like corkscrews. The plant is 1 foot high—succulent, brittle: the flower, bright yellow, spotted with crimson: in form like the single Balsam so often grown in pots. It grows in moist shady woods, in a few counties, but is oftener to be seen in shrubberies, in flower from July to September.

WOOD-SORREL FAMILY.

The Woodland's Sorrel's petals pale,
Vein'd with fine purple streaks we found,
Hid in the thicket's mantled ground,
And pluck'd admiring.—Br. MANT.

The XXII Order contains but the two WOOD-SORRELS, (*Oxalis*) one of which is so plentiful, (and so beautiful) in many a wood, and shady hedge, that you may probably be well acquainted with it already. But perhaps, the Botanist can bring to view, some curious and interesting peculiarities, we, as yet, know nothing of. Its seed-vessel, like the Balsam, has an “elastic, fleshy outer integument, which, on bursting open, projects the seed to a distance.” If you but press the seed-vessel with your finger and thumb, it will send its seeds into your face with sufficient force to hurt an eye; but who will not like to try the experiment? This most delicately beautiful of all our wood flowers—(only less conspicuous in size than the *Anemone*) generally covers a large space, wherever it has once taken root; and this property in the

seed-vessel, is the cause of its distant range, no doubt. It has 5 petals, 5 sepals, 10 stamens, the 5 inner ones, larger than the others, anthers distinct and 2 celled. The flowers are of a delicate shade of lilac with purple veins, and hang their heads pensively, except for one half hour each morning—when they raise them to the sun. This peculiarity has given them the name of “Allelujah,” in Italy. Their stalks are brittle, shaded with pink, and the root, (a tuber,) is coral-like in form, and of a clear red. The leaves are of a brilliant green—when young—on red stalks: spreading in the day-time (if sunny) but folded closely to the stalk, in the early evening hours, or in rainy weather. “They are in form like the Shamrock, and are supposed to be the original *shamroy* of Ireland, though that name has been long applied to the less beautiful leaf of the white or DUTCH CLOVER.” (*Trifolium repens*). Its name ‘*Oxalis*,’ signifies sharp or acid, and it contains a deadly poison called Oxalic Acid; and yet, so useful is this acid, in many chemical preparations, that we should not wish the little plant to be without it. The leaves have an agreeable acid, and are sometimes put into salads.

The XXIII and last Order in this sub-class contains but the BLADDER-NUT (*Staphyleæ*) which "has no right to be included in the British Flora, as it is only to be found in some thickets and hedges, where it was probably planted." * It is a native of Eastern Europe.

Here our first summer of Botanical Rambles must end for a while: and it is better that you should become thoroughly acquainted with the plants in this division, before you study the next. I hope you are, by this time, so far interested in the study, as to be eager to make fresh excursions, as soon as "Spring flowers bloom again." And should health be permitted us, we will proceed with our botanical examinations together.

I regret that, constant weary headaches have prevented my pen from treating the subject as it deserves: but if it prove to be the means of leading your "first steps" into the right path for better improvement, it has fulfilled its mission; and I shall ever rejoice in having made the attempt. And may you, my dear young friends, ever rejoice in a study capable of affording not only so much pleasure in

* 'British Flora.'

itself; but also of giving far higher gratification to the mind in association with thoughts of that Land of Peace and Joy, where Flowers first bloomed;—and of their Creator's love in scattering them thus freely over our Land of care and trial.

Then, let us ever remember, whilst enjoying these beautiful works,—to bless their Creator, and his dear Son who, when on earth, bade us “ *Consider the Lilies of the Field!* ”

September 14th, 1853.

“ Your voiceless lips, oh Flowers! are living preachers,
Each cup a pulpit, every leaf a book,
Supplying to my fancy numerous teachers,
From loneliest nook.

“ Thou, Solomon! wert not, in all thy glory,
Array'd,” the lilies cry, “ in robes like ours;
How vain your grandeur! oh, how transitory
Are human flowers.”

* * * * *

Not useless are ye flowers, though made for pleasure,
Blooming o'er field and wave by day and night,
From every source your sanction bids me treasure,
Harmless delight.

Posthumous glories! angel-like collection!

Upraised from seed or bulb, interred in earth,
Ye are to me a type of resurrection,
And second birth.

Were I, Oh God, in churchless lands remaining,
Far from all voice of teachers and divines,
My soul would find in flowers of thy ordaining,
Priests, sermons, shrines.

HORACE SMITH.

END OF PART FIRST.

DIRECTIONS FOR DRYING PLANTS TO PRESERVE THEIR COLORS.

THE materials required for drying plants, are—common cartridge paper (such as grocers use,) thick, white blotting-paper, common cotton wadding, and millboard: all cut of the same size.

The plants should be gathered in dry weather, and soon after the flowers open when their colors are brightest.

Succulent plants, (such as Daffodil, Orchis, Stone-crop,) should be put into scalding water for a minute or two; leaving the flowers above water;—then, laid on a cloth to dry.

Arrange the specimens and papers in the following order. Mill-board, cartridge paper, wadding, (split open, and the glazed side placed next to the cartridge paper.) Blotting paper, the specimens; blotting paper, wadding; cartridge paper, mill-board, &c., as before.

When the specimens are thus arranged, heavy weights should be put on them: about 30lbs. the first

day, 60lbs. afterwards. A screw press is more convenient. As the moisture of plants should be carried off as quickly as possible (in order to preserve their colors,) remove them from under pressure, in a day or two; carefully take away all the papers, &c., except the blotting-papers between which the specimens are placed: put these in a warm air to dry, whilst the removed papers, &c. are dried in the sun, or by the fire. When dry and warm, place them in the same order as before—put all under heavier pressure for a few days, when (if not succulent) they will be dry.

Flowers of different colors, require different treatment, to preserve their colors.

Blue flowers, must be dried with heat; either under a case of hot sand, before a fire; with a hot iron; or in a cool oven.

Red flowers are injured by heat: they require to be washed with muriatic acid, diluted in spirits of wine, to fix their color. One part of acid, to three parts of spirit, is about the proportion. The best brush to apply this mixture with, is the head of a thistle when in seed, as the acid destroys a hair-pencil, and injures whatever it touches, (except glass or china,) therefore should be used with great care.

Many Yellow flowers turn green; even after they

have remained yellow some weeks; if not dried repeatedly before the fire, and again after they are mounted on paper, and kept in a dry place.

Purple flowers require as much care, or they soon turn a light brown.

White flowers will turn brown, if handled or bruised before they are dried.

Daisies, Pansies and some other flowers, must not be removed from under pressure for two or three days, or the petals will curl up.

The best cement for fixing the specimens on to the paper or card-board, is *gum-paste*.* It is composed of thick gum-water, and flour mixed in warm water, add the two together, warm, and of a consistency that will run off the hair-pencil.

As all dried plants (ferns excepted) are liable to be infested by minute insects, a small quantity of the poison *corrosive sublimate* should be added to the paste, which it will also preserve from mould.

* Some prefer Gum Tragocanth.

A GLOSSARY OF BOTANICAL TERMS.*

- ACAULIS.**—A plant with a very short stem.
- ACCUMBENT.**—Lying *against* anything : in distinction to *incumbent*, lying upon.
- ADNATE.**—Grown to anything by the whole surface ; when an Ovary is united to the side of a Calyx, it is adnate.
- ACHENE.**—Fruit, formed of one Carpel, closed. Pl. II. 6. 9 a.
- ACUTE.**—Sharp-pointed.
- ÆQUALIS.**—Equal, or similar in size : uniform.
- ÆSTIVATION.**—The manner in which the parts of a flower are folded up before they expand.
- AGGREGATE.**—Several things collected together into one body ; as the seeds in the fruit of a Strawberry.
- ALATUS.**—A thin wing or expansion to stem or seed, &c. Pl. II. 7. S.
- ALBUMEN.**—That portion of some seeds, which lies between the Embryo, and the Testa.
- ALBURNUM.**—The white wood of a tree. Pl. I.
- ALTERNATE.**—Placed on opposite sides, of a stem, or axis ; on a different line ; or, where Stamens are between the Petals, in turn.
- AMPLEXICAUL.**—Clasping : when a Leaf clasps a Stem at its base.
- ANALOGY.**—Resembling a thing in many points, but differing in more important.

* Taken chiefly from Dr. Lindley's "Glossary of Botanical Terms, with wood-cuts."

- ANNUAL.—Flowering and fruiting in the same year in which it is raised from seed.
- ANTHER.—The case which contains the Pollen (or farina) of a plant.
- APETALOUS.—Having no Petals; also applied to plants having no Corolla or Calyx.
- APPENDAGES.—A name applied to any parts, which grow on another part. Hairs and Prickles are appendages to the stem, &c.
- APPRESSED.—Hairs, &c. pressed *upwards* against the Stem, or part they grow on.
- AQUATICUS.—Living in water.
- AQUATILIS.—Living under water.
- ARBOR.—A Tree, having a distinct trunk from which the main branches grow.
- ARBUSTUM.—A Shrub, having no distinct trunk, but only a collection of woody stems, which do not die down in winter.
- ARIL.—A gelatinous body, which rises from the placenta, and encompasses the seeds.
- ARTICULATED.—Jointed.
- ARVENSIS.—Living in open fields.
- AWN.—The beard of Corn, or any such slender process from the seed. Pl. II. 7 A. S. Awn formed of the Style.
- AXIS.—Any centre, round which leaves, and other organs are arranged.
- AXIL.—The angle formed between the axis and any organ that grows from it.
- AXILLARY.—Growing in the axil of any parts.
- BACCA.—Berry. A succulent seed-vessel filled with pulp, in which the seed nestles: as in a currant.
- BACCA CORTICOLA.—A Berry having a rind, as in an Orange.
- BARBS.—Hooked hairs, &c.

BARK.—The outer rind of a tree, beyond the wood. The only *true* Bark is that of Exogens. Pl. I. A 2.

BEAK.—The long sharp point or angle of a leaf, or other organ.

BL.—Twice, bi-pinnate. Pl. II. 14 6. p.

BIENNIAL.—Seeds which do not flower till the second year (of their growth) and then die.

BIFIDUS.—Split half-way into two parts.

BLADE.—The Lamina, or expanded part of a leaf.

BRACTS.—Bracteæ. The leaves placed immediately below the Calyx, *if* different in form from the other leaves; and if not in a ring, (whorl, see Involucre).

BRISTLES.—Stiff, sharp hairs:

BUD.—The young folded-up branch or flower.

BULB.—A leaf-bud of a Monocotyledonous plant, the scales of which are fleshy, and which throw out roots, and become a plant.

BULB, SOLID.—A Corm; which see.

BULB, TUNICATED.—The outer scales are thin and membranous, and folded round the stem. Pl. I. B. 5.

CADUCOUS.—Dropping off.

CALYX.—The most external of the Floral whorls: called *superior*, when it is not separable from the Ovary: *inferior* when it is separate from that part. (Pl. II. all, inferior).

CAMPESTRIS.—Growing in open fields or plains.

CAPSULE.—Any dry seed-vessel opening when ripe. Usually the name given to dry seed-vessels, formed of more than two Carpels. Pl. I. A 4. j. k.

CARPEL.—One of the rolled-up leaves of which the Pistil is composed: whether combined, or distinct. Also applied to some *fruits*. Pl. II. 7. cc., m. c. A S. c.

COROLLIFLORÆ.—Name of the III. Sub-class. (See Method of Classing Plants.)

CORIOPSIS.—A fruit, whose Pericarp is membranous, and united to the seed; as corn, grass-seed, &c.

CATKIN, or AMENTUM.—A spike of drooping, apetalous flowers, like the Nut, Oak, Poplar.

CAULINE,
CAULESCENT. } Of, or belonging to the stem.

CELLS.—Cavities in the interior of a plant. The Cells of tissue, (Cellular tissue), are those which form the interior of the elementary vesicles. Air-cells are spaces formed by a peculiar building up of tissue.

CLAVATUS.—Club-shaped. Gradually thickening upwards.

CLAW.—The long, narrow base of the petals of some flowers.
 Pl. II. 2. p. cl.

CLOVEN.—Divided partly down the middle. Pl. II. 2 p. c.

CONDUPLICATE.—When the sides of an organ are applied to each other by their faces.

COMPRESSED.—Flattened; as are most pods, &c.

CONVOLUTE.—When one part is wholly rolled up in another: as in the Petals of the Wallflower bud.

CORDATE.—Heart-shaped. Pl. II. 14. c.

CORM.—A fleshy, under-ground Stem: like a bulb, but not scaly, &c.

- **COROLLA.**—That part of a flower which intervenes between the Calyx and Stamens.

CORONA.—A Coronet. Any appendage which intervenes between the Corolla and Stamens: as the cup of the Daffodil. Pl. II. 2 p. c.

CORYMB.—A raceme (of flowers) whose pedicils are gradually shorter, as they approach the summit.

CRESTED.—Having an elevated, irregular or notched ridge: as the crest of a helmet.

CRUCIATE.—Cruciform, having the form of a cross with equal arms: as the Flowers with four distinct Petals. Cruciform family. Pl. II. 2 W.

CRYPTOGAMS. } Plants without flowers.

CRYPTOGAMIA. } Class-name of do.

CYLINDRICAL.—Like a Cylinder; a long, round tube.

DECIDUOUS.—Finally, falling off, like Sepals of Poppy, &c.

DECUMBENT.—Reclining upon the ground, and rising again from it (Stems, &c.)

DECURRENT.—Prolonged below the point of insertion; and extending downwards (leaves against a Stem.)

DECURVED.—Curving downwards.

DEFLEXED.—Bent downwards.

DEFORMED.—An alteration in the usual form of an organ.

DEHISCENS.—The act of splitting into regular parts. Pl. II.
7 f. 7. c c.

DENTATO.—Having sharp teeth, with concave edges.

DEPENDENT.—Hanging down.

DEPRESSED.—Broad and dwarf.

DI.—Two.

DICHOTAMUS (Forked.)—Flowers, or Branches, in pairs.

DIDYNAMOUS.—Having two Stamens longer than the two others. Thyme, Sage, &c.

DIOECIA.—When plants, of the *same species*, have Pistils without Stamens, in the flowers of one plant; and Stamens without Pistils in the flowers of another plant; as the Willows, &c.

DISK.—An organ intervening between the Stamens and Ovary.

DISSECTED.—Cut into many deep lobes.

DISSEPIMENTS.—The partitions in a fruit; caused by the adhesion of the sides of two Carpels. Pl. II. 7. c. d. (Poppy.)

DRUPE.—A fleshy, succulent fruit, enclosing a hard shell, with a kernel; as the Plumb, Cherry, &c.

DUPLICATE.—A pair.

ELLIPTICAL.—A flat body, which is oval, and acute at each end.

ENTIRE.—Having no kind of marginal division. Pl. II. 14. o.
14. L. 14 r.

EPIDERMIS.—The true skin of a plant, below the cuticle.

EPIPETALOUS.—Growing on Petals: as some Stamens do.

EX.—Outward; external.

EXOGENOUS.—Growing by addition to the *outer* parts of a Stem.

EXERTED.—Projecting beyond the orifice of an organ.

FARINACEOUS.—Having the texture of flour; as the albumen of Wheat.

FEATHERY.—Consisting of long hairs, which are themselves hairy.

FASCICULATED.—When several similar things proceed from a common point; as the leaves of the Larch, or tubers of the Lesser Celandine. Pl. II. 15. fa.

FILIFORM.—Thread-like; slender.

FLORETS.—When many small Flowers are collected in clusters or heads; each flower is called a floret: the centre of a Daisy, &c.

FREE.—Not adhering to any other part—not adnate.

FIMBRIATED.—Fringed, having the border edged by long, slender processes.

FRUCTIFICATION.—The parts of a Flower that produce the Fruit.

FURROWED.—Marked by longitudinal Channels; as the Stem of Parsnip, &c.

FUCIFORM.—Thick, tapering to each end; as Pl. II. 14 fu.

GERMEN.—The Ovary.

GIBBOUS.—More convex or tumid in one place than another.
Crescent-shaped.

GLABROUS.—Smooth, having no hairs.

GLANDULAR.—Covered with hairs bearing glands upon their tips. Pl. II. 11. g.

GLANDS.—Wart-like swellings: glands are very various in form.

GLAUCOUS.—Covered with a fine bloom; like the Plum, Carnation-leaves, &c.: a very blue-green.

GLOBOSE.—Forming nearly a true sphere or globe.

GLOSIOLOGY.—That part of Botany which teaches the technical terms.

GLUME, or GLUMA.—The exterior series of scales which form the Flower of a Grass or Grain.

HABITAT.—The situation in which a plant grows, in its wild state.

HASTATE.—Halbert-headed. Enlarged at the base into two diverging lobes.

HERBACEOUS.—Plants, which die down to the ground, in winter. Not woody.

HILUM.—The scar produced on a Seed, by its separation from the Placenta.

HIRSUTA.—Hairy.

HISPID.—Covered with long, stiff hairs.

IMBRICATUS.—Petals, which overlap each other, like tiles.

INCISO.—Having deep cut edges.

INCUMBENT.—Said of an embryo, when its radicle is folded down upon the back of the Cotyledons.

INDEHISCENT.—Not splitting open when ripe, (a seed-vessel, &c.)

INFERIOR.—Growing below some other organ. An inferior Calyx, grows below the Ovary.

INVOLUCRE.—A ring, or whorl of Bracts, surrounding one or several Flowers.

INVOLUTE.—When edges are rolled inwards, on each side.

KEEL.—With a sharp, projecting ridge; as the keel of a boat. Glumes of Grasses, &c.

KIDNEY-SHAPED.—Crescent-shaped, reniform with the ends rounded. Pl. II. 4. r.

LABIATE.—A term applied to a Monopetalous Calyx or Corolla, which is separated into two unequal divisions: as Thyme, White Nettle, &c.

LANCEOLATE.—Lance-shaped. Pl. I. 3. b.

LIMB.—The flat, expanded part of a Petal.

LINEAR.—Narrow, short; as the leaf of a Yew-tree.

LOBED.—Scolloped round the edges: largely. Pl. II. 14. b.

LYRATE.—Lyre-shaped. The upper lobes much larger than the lower. Pl. II. 14. l.

MEDULLARY-RAYS. The cellular plates which connect the Pith of Exogens with the Bark: called the "silver grain."

MEMBRANOUS.—Thin, and semi-transparent.

MONO.—In Greek, means *one*.

MONADELPHOUS.—Having all the Stamens united by their filaments, into a tube.

MONÆCIOUS.—Plants which have Flowers without Stamens; and other Flowers without Pistils. Nut, &c.

NECTAR.—The honey of a Flower, which is nourishment for the Stamens and Pistils.

OB.—Added to a word to signify inversion. *Oboordate*. Pl. II. 2. m., heart-shaped, the narrow part downwards.

ORBICULAR.—Perfectly circular. Pl. II. 14. o.

PALMATE.—Having 5 lobes: the midribs of which meet in a common point. Pl. II. 14. 5. l.

PANICLE.—A branched raceme. Pl. II. 12. P.

PARIETAL.—Growing to the walls of an Ovary.

PARASITE.—A plant which grows on a different plant.

PATENS.—Spreading wide open.

- PEDATE.**—The same as Palmate, except that the two lateral lobes, are themselves divided into smaller segments.
- PEDICIL.**—The Stalk of a Flower, which grows on a Flower-stalk. Pl. II. 12. R. The Stalk of each Flower.
- PEDUNCLE.**—The Stalk of a Flower: or of many Flowers on Pedicils.
- PELTATE.**—Fixed to the Stalk by the centre, or by some point within the margin. Pl. II. 14. p.
- PERIANTH.**—When Calyx and Corolla are so much alike, that they cannot be readily distinguished: as in Bluebell, Lily, &c.
- PERICARP.**—The shell or rind of all Fruits.
- PERSISTENT.**—Not falling off: as in Evergreens.
- PETALOIDES.**—A Calyx whose Sepals have the appearance of Petals. Pl. II. A.
- PETIOLE.**—The stalk of a leaf. Pl. II. 14. p x.
- PETIOLULES.**—The stalks of leaflets which form a compound leaf. Pl. II. 14. p p.
- PINNATE.**—When simple leaflets are arranged on each side a common petiole.
- PINNATIFID.**—A leaf, &c. almost divided to the centre, into lateral segments.
- PLACENTA.**—The place or part on which ovules first grow. Pl. II. 7. p.
- PLANE.**—Flat: perfectly level.
- PLUMULE.**—The first leaf-bud of a seed: placed between two Cotyledons, or on one side of a solitary Cotyledon. Pl. I. A. B.
- POLY.**—Numerous.
- POLYADELPHUS.**—Having many parcels of Stamens.
- PORES.**—Apertures in the covering of anything.
- PROCUMBENT.**—Lying flat on the ground.
- PSEUDO.**—Spurious.

QUADRIFOLIATE.—When the petiole bears four leaflets from the same point. A “four-leaved Shamrock.”

RACEME.—A flower-stalk on which the flowers are arranged on pedicels at distances. Pl. II. 14 R.

RADICAL.—Arising from the root, or from its crown. Radical Leaves. Pl. II. 11 r.

RADICLE.—The first root of a plant.

RECEPTACLE.—A part which receives or bears other parts. Pl. II. 4 R. 6. R.

REFLEXED.—Curved backwards, excessively. Pl. II. C. Sepals of Crowfoot.

RETICULATED.—Like Net-work.

SACCATE.—Bag-shaped.

SAGITATE.—Enlarged at the base into two acute lobes, like an arrow. Pl. I. 3 a.

SCABROUS.—Rough to the touch.

SCALES.—Small, close pressed, rudimentary leaves.

SCAPE.—A peduncle which rises from the root. Pl. II. 11.

SECUND.—Having all the flowers or leaves, turned towards the same side. Pl. II. 11.

SERRATED.—Notched like a saw.

SIMPLE.—Of one part. Not compound.

SPATHE.—A large Bract rolled over an inflorescens when young. Daffodil, &c.

SPONGIOLE.—The young extremity of a root, which draws nourishment from the earth.

SUB.—Usually signifies, somewhat, or nearly.

SUCCULENT.—Very cellular and juicy.

SUPERIOR.—Growing above any organ or part. Calyx above Ovary.

SYLVESTRIS.—Growing in woods.

SYN.—Union, adhesion, growing together.

SYNGENESIOUS.—Having the anthers united at their edges, so as to form a tube.

SYNONYMES.—Names, which have the same meaning, or mean the same Plant.

TERNATE.—Three in one parcel, or on one axis, Pl. II. 14 t.

TENDRIL.—A twisting, threadlike process, from a stem, or the end of a petiole; by which some plants cling to others for support: the nerves of a leaf without the Lamina. Pl. II. 18 t.

TESTA.—The skin of a seed.

TETRA.—Four.

TETRADYNAMOUS.—Having 6 petals—of which 4 are shorter, and stand in pairs.

TISSUE.—The material out of which the elementary organs of plants are constructed.

UMBEL.—Where many flowers on stalks radiate from the same point: like the Parsleys, Carrots, &c.

UNCINATE.—Hooked.

VALVATE.—United by their margins, like the valves of a Capsule.

VALVES.—The doors of a part which opens; as of anthers and seed-vessels: each part is called a valve.

VERNATION.—The manner in which leaves are arranged in the leaf bud.

VERTICILATE.—When several pieces (leaves, sepals or petals) form a ring or whorl round a stem.

VENATION.—The arrangement of veins in a leaf.

VERSATILE—Swinging freely, as the anthers of grasses.

WHORL.—A ring of organs, on the same plane.

Winged.—Furnished with any kind of membranous or thin expansion. Pl. II. 7 S.

NOTES.

NOTE *a*.—Travellers, who have visited Mount Lebanon, state that, Cedar-trees are still growing there, which some suppose to be coeval with those used in building the Temple of Solomon. And there are some trees of the *Adonza degitata*, growing in Senegal, whose ages are estimated at 5000 years. The trunks of these trees measure more than 30 feet in diameter! Some Oak-trees in this country are from 800 to 1000 years old. And some Yew-trees can, on good authority, be dated 2000 years old! Though the *Patrus* and most trees of the class of Monocotyledons, do not live to so great an age, there are a few exceptions to be found amongst them. The "Dragon's Blood" is one.

NOTE *b*.—To those who consider the study of Botany *too difficult for Children*;—the following extracts from "A Village Flower Show" are given, as the best proof that all the more difficult steps may be surmounted, even by village children, during their play hours.

"As the seasons come round the children of H— go into the fields to gather Wild Flowers, and a faithful record is kept and printed of the Parish Flora. Hard Names, such as Monocotyledonous, and Inflorescens, are as familiar to them as household words. They are engrafted on the memory by their *continual, practical* illustration. The spelling-book gives them names equally hard and important, such as, ple-ni-po-ten-tia-ry, and ag-gran-dize-ment, but as these things are unfamiliar and have no practical illustration amongst them, they are forgotten almost as soon as learnt."

"One little girl added twelve new species to the flora of H—— during the past year; detected separately in the field, as not being in the printed Catalogue, and not hitherto known to the University Professor of B——, as being inhabitants of his parish. Plants from the West of England, not before seen by the little botanists, were then shown to them; and the class, family, and genus were told without hesitation; and when asked, to what plant known to them, they were related, —the allied, local species was named, though differing in general aspect. The plant was determined alone, by its scientific characters such words as tetradynamous, hypogynous, polipetalous, syngenesious and the like—learnt out of a printed formula, had (owing to the assistance of the wild flowers,) proved to them much easier than the multiplication table."—*Literary Gazette, July 9th, 1853.*

*English Names of all the Flowers in the first Sub-class,
that are described.*

Anemone	32	Dame's Violet	66
Awlwort	66	Dyer's Rocket	43
Balsam	118	Dyer's Woad	66
Bane-berry	30	Flax	99
Barberry	42	Flax-seed	99
Barrenwort	42	Fly-trap	80
Bitter-cress	62	Fumitory	54
Bladder-nut	121	Garlic-Mustard	67
Buffonia	92	Globe-flower	38
Buttercup	36	Gold-of-pleasure	66
Cabbage	68	Grass of Parnassus	82
Campion	90	Heart's-ease	79
Candy-tuft	65	Hedge-Mustard	67
Carnation	86	Hellebore	38
Catchfly	88	Herb-Robert	114
Celandine	52	Horned-Poppy	51
Lesser	37	Horse-Radish	59
Cheddar Pink	87	Hutchinsia	59
Charlock	70	Jagged-Chickweed	92
Chickweed	95	Kale	68
Clove Pink	87	King-cup	37
Cockle	91	Koniga	59
Columbine	39	Larkspur	39
Coral-root	59	Lime-tree	105
Corydalis	55	Linden	106
Cranesbill	144		
Cress-rocket	68		
Crowfoot	34		
Cyphel	92		

Mallow	103	Sea-Rocket	59
Marsh Mallow	104	Shepherd's Purse	66
Musk	103	Soapwort	86
Maple	112	Stock	59
Marigold (Marsh)	37	St. John's-wort	107
Meadow Pink	91	Stork's-bill	116
Meadow Rue	30	Stitchwort	92
Milkwort	83	Sundew	80
Mignonnette	73	Sycamore	112
Moenchia	92		
Monkshood	40	Teesdalia	59
Mouse-ear Chickweed		Thale-cress	67
Mouse-tail	30	Tower-Mustard	59
Mustard	69	Traveller's Joy	30
		Treacle-Mustard	66
Navev	69	Tree-Mallow	104
		Turnip	69
Pæony	40	Tutsan	109
Pansy	78		
Pearlwort	92	Violet	76
Penny-cress	59		
Pepper-wort	69	Wall-flower	59
Pheasant's-eye	30	Wall Rocket	70
Pink	86	Water-cress	63
Poppy	47	Water-Lily	43
		Welsh-Poppy	50
Radish	71	White Poppy	50
Rape	69	Whitlow-grass	64
Roemeria	48	Wind Flower	32
Rock-cress	59	Winter-cress	59
Rocket	68	Woad (dyer's)	66
Rock-rose	74	Wood Anemone	32
		Wort-cress	66
Sand-wort	93	Wolf's-bane	40
Sauce-alone	68		
Scurvy-grass	59	Yellow Water-Lily	46
Sea-Purslane	92		

NAMES OF ALL THE GENERA CONTAINED IN
THE FIRST SUB-CLASS, THALIMIFLORÆ.

<i>Genera.</i>	<i>Order.</i>	<i>Page.</i>
Clematis.		
Thalictrum.		
Anemone.		
Adonis.		
Myosurus.		
Ranunculus.		
Caltha.		
Trollius.	I. Ranunculaceæ	30
Heleborus.		
Aquilegia.		
Delphinium.		
Aconitum.		
Actæa.		
Pæonia.		
Berberis.	II. Berberidaceæ	42
Epimedium.		
Nymphæa.	III. Nymphæaceæ	43
Nuphar.		
Papaver.		
Meconopsis.		
Glaucium.	IV. Papaveraceæ	47
Ræmeria.		
Chelidonium.		
Fumaria.	V. Fumariaceæ	54
Corydalis.		

Matthiola.	VI. Cruciferae	56
Cheiranthus.	1. Sub-Order	59
Barbarea.	I. Tribe	
Turritis.		
Arabis.		
Dentaria.		
Cardamine.		
Nasturtium.		
Armoracia.		
Cochlearia.		
Koniga.		
Draba.	II. Tribe.	64
Thlaspi.		
Hutchinsia.		
Teesdalia.		
Iberis.	III. Tribe	65
Cakile.	IV. Tribe	
Hesperis.	2. Sub-Order	66
Sisymbrium.	V. Tribe	
Alliaria.		
Erysimum.		
Camelina.	VI. Tribe	
Subularia.		
Capsella.	VII. Tribe	66
Lepidium.		
Senebiera.		
Isatis.	VIII. Tribe	
Brassica.	3. Sub-Order	
Sinapis.	IX. Tribe	68
Diploxaxis.		
Velleæ.	X. Tribe	
Crambe.		
Raphanus.	XI. Tribe	71
Reseda.	VII. Resedaceæ	73
Heleanthemum.	VIII. Cistaceæ	74
Viola.	IX. Violaceæ	75
Droseræ.	X. Droseraceæ	80
	1. Sub-Order	
Parnassia.	2. Sub-Order	82

Polygala.	XI. Polygalacæ	83
Frankenia.	XII. Frankeniaceæ	85
Elatine.	XIII. Elatinacæ	85
Dianthus.	XIV. Caryophyllacæ	85
Saponaria.	1. Sub-Order	86
Silena.		
Lychnis.		
Agrostemma.		
Sagina.	2. Sub-Order	92
Buffonia.		
Cherleria.		
Honckenya.		
Arenaria.		
Malachium.		
Stellaria.		
Holosteum.		
Mœuchia.		
Cerastium.		
Linum.	XV. Linacæ.	99
Radiola.		
Lavatera.	XVI. Malvacæ	101
Malva.		
Althæa.		
Tilia.	XVII. Tiliacæ	105
Hypericum.	XVIII. Hypericacæ	107
Acer.	XIX. Aceracæ	112
Geranium.	XX. Geraniacæ	113
Erodium.		
Impatiens.	XXI. Balsaminacæ	118
Oxalis.	XXII. Oxalidacæ	119
Staphylea.	XXIII. Staphyleacæ	121

END.



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